

Index of Technical and Symposium Papers

Vol. 106, Part 1

TITLES

A

- Analysis of Air Supply Type and Exhaust Location in Laboratory Animal Research Facilities Using CFD, ANDREW MANNING, FARHAD MEMARZADEH, GERALD L. RISKOWSKI. 877
- ASHRAE's New Chiller Heat Recovery Application Guide, CHAD B. DORGAN, CHARLES E. DORGAN. 152
- Assessment of Interlaboratory Reproducibility in Fenestration Energy Ratings, An, DANIEL J. WISE, BIPIN V. SHAH 575
- Automated Generation of Hourly Design Sequences, DAVID D. SCHMITT, SANFORD A. KLEIN, DOUGLAS T. REINDL. 158

C

- Church Heating Numerical Modeling and Comparison Between Radiant and Forced Convection Systems, SAVVAS A. TASSOU, WEIZHONG XIANG, MARIA KOLOKOTRONI. 495
- Comparative Performance of U.K. Fabric Energy Storage Systems, GEORGE D. BRAHAM 811
- Comparing Maintenance Costs of Geothermal Heat Pump Systems with Other HVAC Systems Preventive Maintenance Actions and Total Maintenance Costs, MICHAELA A. MARTIN, MELISSA G. MADGETT, PATRICK J. HUGHES. 408
- Comparison of Binary Mixture Heat and Mass Transfer Analysis with Single-Component Heat and Mass Transfer Analysis in the Design of GAX Absorber/Desorber, JIMING CAO, RICHARD N. CHRISTENSEN. 72
- Comparison of Vertical Ground Heat Exchanger Design Software for Commercial Applications, A, JOHN A. SHONDER, VAN D. BAXTER, PATRICK J. HUGHES, JEFF W. THORNTON. 831
- Comprehensive Evaluation of Radiant Cooling System Integrated with Ice Storage System, YUKIO NAKANO, TOSHIYUKI MIYANAGA, TATSUO OKA 169
- Computer Simulation of Hydronic Heating/Cooling System with Embedded Pipes, GERD HAUSER, CHRISTOPH KEMPKE, BJARNE W. OLESEN 702

- Control and Optimization Issues Associated with Algorithm-Controlled Refrigerant Throttling Devices, DONAL P. FINN 524
- Control of Distributed Electrical Generation Systems, PETER S. CURTISS 661
- Control Requirements for CoGen and MicroGen Plants in a Deregulated Electricity Industry, GIDEON SHAVIT 655
- Coupled Airflow and Energy Simulation Program for Indoor Thermal Environmental Studies, A, JELENA SREBRIC, QINGYAN CHEN, LEON R. GLICKSMAN 465
- Critical Flow of Refrigerants Through Adiabatic Capillary Tubes: Experimental Study of Zeotropic Mixtures R-407c and R-404a, SAMUEL YANA MOTTA, SERGIO LEAL BRAGA, JOSÉ ALBERTO R. PARISE 534

D

- Database of Window Annual Energy Use in Typical North American Single-Family Houses, A, DARIUSH K. ARASTEH, JOE HUANG, ROBIN D. MITCHELL, ROBERT CLEAR, CHRISTIAN KOHLER 562
- Design of Panel Heating and Cooling Systems, JÜRGEN BOHLE, HERBERT KLAN 677
- Development of an In-Situ System and Analysis Procedure for Measuring Ground Thermal Properties, WARREN A. AUSTIN, III, CENK YAVUZTURK, JEFFREY D. SPITLER. 365
- Development of the Design Climatic Data for the 1997 ASHRAE Handbook-Fundamentals, DONALD G. COLLIVER, RICHARD S. GATES 3
- Diabatic Flow Instabilities in Capillary Tube-Suction Line Heat Exchangers, YI LIU, CLARK W. BULLARD. 517
- Direct Calculation of Mean Radiant Temperature Using Radiant Intensities, JEANNE M. PALMER, KIRBY S. CHAPMAN 477
- Distributed Electrical Generation Technologies and Methods for Their Economic Assessment, JAN F. KREIDER, PETER S. CURTISS 645
- Duct Cleaning: A Review of Associated Health Effects and Results of Company and Expert Surveys, LISA M. BROSSAU, DONALD VESLEY, THOMAS H. KUEHN, JOSH MELSON, HEE SIEW HAN 180

E

- Effects of Improved Residential Furnace Filtration on Airborne Particles, The, DON FUGLER, DARA BOWSER, WILLIAM KWAN. 317
- Effects of Oil on Boiling of Replacement Refrigerants Flowing Normal to a Tube Bundle—Part I: R-123, ROBERT A. TATARA, PARVIZ PAYVAR. 777
- Effects of Oil on Boiling of Replacement Refrigerants Flowing Normal to a Tube Bundle—Part II: R-134a, ROBERT A. TATARA, PARVIZ PAYVAR. 786
- Environmental Design Using Dynamic Insulation, BRUCE J. TAYLOR, MOHAMMED S. IMBALI. 15
- Evaluating Smoke Management in a Large Volume Space, DAVID M. ELOVITZ. 637
- Evaluating the Accuracy of PUREZ in Predicting Unitary Equipment Performance, JASON T. LEROY, ECKHARD A. GROLL, JAMES E. BRAUN. 200
- Evaluating the Early Development of Smoke Hazard from Fires in Large Spaces, JAMES A. MILKE. 627
- Evaluation of Design Ventilation Requirements for Enclosed Parking Facilities, ARSELENE AYARI, MONCEF KRARTI. 216
- Evaporative Heat Transfer in Mesoscale Heat Exchangers, SUNIL S. MEHENDALE, ANTHONY M. JACOBI. 447
- Experimental Investigation of the Effect of Hydrophobicity on the Rate of Frost Growth in Laminar Channel Flows, An, JOSHUA M. DYER, BRIAN D. STOREY, JOHN L. HOKE, ANTHONY M. JACOBI, JOHN G. GEORGIADIS. 143
- Experimental Water Vapor Permeability Results for Common Wall Materials, JERRY M. SIPES, MOHAMMAD H. HOSNI. 238

F

- Field Evaluation of Ventilation System Performance in Enclosed Parking Garages, ARSELENE M. AYARI, DICK A. GROT, MONCEF KRARTI. 228
- Field Test of a New Method for Determining Soil Formation Thermal Conductivity and Borehole Resistance, JOHN A. SHONDER, JAMES V. BECK. 843
- Field Tests for Ground Thermal Properties—Methods and Impact on Ground-Source Heat Pump Design, STEPHEN P. KAVANAUGH. 851

- Flow Boiling of CO₂ in Microchannels, YUAN ZHAO, MAJID MOLKI, MICHAEL M. OHADI, S. V. DESSIATOUN. 437
- Fundamental Equation for the Calculation of the Thermodynamic Properties of Trifluoromethane (R-23), A, STEVEN G. PENONCELLO, ZHENGJUN SHAN, RICHARD T. JACOBSEN. 739

G

- Generalized Model for Viscosity and Thermal Conductivity of Trifluoromethane (R-23), A, ZHENGJUN SHAN, STEVEN G. PENONCELLO, RICHARD T. JACOBSEN. 757

H

- Heat Exchange Coefficient Between Floor Surface and Space by Floor Cooling—Theory or a Question of Definition, BJARNE W. OLESEN, ERIC MICHEL, FREDERIC BONNEFOI, MICHELE DE CARLI. 684

I

- Impact of Glazing Selection on Residential Duct Design and Comfort, The, WENDY A. HAWTHORNE, SUSAN REILLY. 553
- Impact of Heating Systems and Wall Surface Temperatures on Room Operative Temperature Fields, KIRBY S. CHAPMAN, JAMIE RUTLER, RICHARD D. WATSON. 506
- Implementation of a Near-Optimal Global Set Point Control Method in a DDC Controller, MARK A. CASCIA. 249
- Implementation of Comfort-Based Air-Handling Unit Control Algorithms, WAI L. TSE, ALBERT T.P. SO. 29
- Importance of Grouting to Enhance the Performance of Earth Energy Systems, The, FRANK J. LENARDUZZI, CHRIS B.H. CRAGG, H.S. RADHAKRISHNA. 424
- Improved Fluids for Naturally Stratified Chilled Water Storage Systems, WILLIAM E. STEWART, JR. 264
- Indices of Thermal Comfort Developed from Field Survey in Brazil, ANTONIO AUGUSTO DE PAULA XAVIER, ROBERTO LAMBERTS. 45
- Infiltration, Natural Ventilation, and HVAC Performance in the Intelligent Workplace, ARDESHIR MAHDAVI, ROBERT J. RIES, DONGWOO CHO. 728
- Investigation of Static Microisolators in Wind Tunnel Tests and Validation of CFD Cage Model,

GERALD L. RISKOWSKI, FARHAD
MEMARZADEH..... 867

M

- Measured Airtightness of an Installed Skylight, C.Y.
SHAW, R.J. MAGEE, G.F. POIRIER..... 713
- Measurement of Solubility, Viscosity, and Density
of R-410a Refrigerant/lubricant Mixtures,
RICHARD C. CAVESTRI, WILLIAM R.
SCHAFFER..... 277
- Method for Measuring Ice Slurry Particle Agglomer-
ation in Storage Tanks, A, KANETOSHI
HAYASHI, KEN KASZA 117
- Methods and Criteria for Cleaning Contaminated
Ducts and Air-Handling Equipment, LISA M.
BROSSEAU, DONALD VESLEY, THOMAS H.
KUEHN, JOSH MELSON, HEE SIEW HAN ... 188
- Microchannel Components for Absorption
Space-Conditioning Systems, SRINIVAS
GARIMELLA 453
- Microturbine Cogeneration, ROBERT J. BRAN-
DON, CHRIS W. SNOEK 669
- Monitoring for Ventilation and Airtightness, DAVID
W. BEARG 719

N

- New Developments In Atrium Smoke Management,
JOHN H. KLOTE 620

O

- Optimal Design of Liquid Desiccant Cooling Sys-
tems, SANJEEV JAIN, P.L. DHAR, S.C.
KAUSHIK..... 79

P

- Parametric Analysis of Variables That Affect the
Performance of a Desiccant Dehumidification
System, EDWARD A. VINEYARD, JAMES R.
SAND, DAVID J. DURFEE 87
- Part-Load Performance of Energy Wheels: Part I,
Wheel Speed Control, CAREY J. SIMONSON,
WEI SHANG, ROBERT W. BESANT 286
- Part-Load Performance of Energy Wheels: Part II -
Bypass Control And Correlations, CAREY J.
SIMONSON, WEI SHANG, ROBERT W.
BESANT 301
- Performance Characteristics of a Commercially
Available Gas-Fired Desiccant System, ALI A.
JALALZADEH-AZAR, W. GLENN STEELE,
B.K. HODGE 95

- Performance Evaluation of Floor Thermal Storage
System, KOICHIRO SHINKAI, ATSUSHI
KASUYA, MASAHIRO KATO..... 311
- Preliminary Assessment of the Effects of
Ground-Water Flow on Closed-Loop
Ground-Source Heat Pump Systems, A,
ANDREW D. CHIASSON, SIMON J. REES,
JEFFREY D. SPITLER 380
- Pressure Drops in T-Junctions—A Comparison,
JÖRGEN B. ERIKSSON, TOR-GÖRAN
MALMSTRÖM 359

S

- Second Law Analysis of Multi-Stage Lithium Bro-
mide/Water Absorption Heat Transformers,
SHUN-FU LEE, S.A. SHERIF 105
- Simplified Analysis of Building Thermal Storage
Effects, JEAN J. LEBRUN, PIERRE J. NUS-
GENS..... 801
- Simplified Method of Estimating Efficiency of Radi-
ant and Convective Heating Systems, HARUO
HANIBUCHI, SHUICHI HOKOI 487
- Simplified Procedure for HVAC Duct Sizing, A,
YAW ASIEDU, ROBERT W. BESANT,
PEIHUA GU 124
- Smoke Movement for Sprinklered Fires, GARY D.
LOUGHEED, CAM MCCARTNEY, BRUCE C.
TABER..... 605
- Space Suit Thermal Dynamics, ANTHONY B.
CAMPBELL, SATISH S. NAIR, JOHN B.
MILES, JOHN V. IOVINE, CHIN H. LIN..... 59

T

- Thermal Storage Case Study: Combined Building
Mass and Cooling Pond, DAVID ARNOLD 819
- Thermoeconomic Analysis of a CHP System by
Iterative Numerical Techniques, PRAKASH R.
DAMSHALA 327
- Two-Phase Frictional Characteristics of R-410A
and Air-Water in a 5 mm Smooth Tube, YU-
JUEI CHANG, SHI-KUO CHIANG, TSAIR-
WANG CHUNG, CHI-CHUAN WANG 792

U

- Update on Maintenance and Service Costs of Com-
mercial Building Ground-Source Heat Pump
Systems, DOUGLAS CANE, JEREMY M.
GARNET 399
- Using Radiant Cooled Floors to Condition Large
Spaces and Maintain Comfort Conditions,
PETER SIMMONDS, STEFAN HOLST,
STEPHANIE REUSS, WAYNE GAW..... 695

V

- Vapor-Liquid Equilibria for an R-134a/Lubricant Mixture: Measurements and Equation-of-State Modeling, MARCIA L. HUBER, CYNTHIA D. HOLCOMB, STEPHANIE L. OUTCALT, J. RICHARD ELLIOTT. 768
- Vapor-Liquid Equilibrium and Densities of RE-143a (CF_3OCH_3)/ RE-218 ($\text{CF}_3\text{OCF}_2\text{CF}_3$) Mixtures as R-12 Or R-22 Alternatives, ISMAIL KUL, DARRYL D. DESMARTEAU, ADOLPH L. BEYERLEIN 351
- Ventilation Design in Animal Research Facilities Using Static Microisolators, FARHAD MEMARZADEH, GERALD L. RISKOWSKI. 859

W

- Window Performance for Human Thermal Comfort, PETER R. LYONS, DARIUSH ARASTEH, CHARLIE HUIZENGA. 594

AUTHORS

A

- ARASTEH, DARIUSH K., JOE HUANG, ROBIN D. MITCHELL, ROBERT CLEAR, CHRISTIAN KOHLER, A Database of Window Annual Energy Use in Typical North American Single-Family Houses. 562
- ARASTEH, DARIUSH, PETER R. LYONS, CHARLIE HUIZENGA, Window Performance for Human Thermal Comfort. 594
- ARNOLD, DAVID, Thermal Storage Case Study: Combined Building Mass and Cooling Pond 819
- ASIEDU, YAW, ROBERT W. BESANT, PEIHUA GU, A Simplified Procedure for HVAC Duct Sizing 124
- AUSTIN, WARREN A., III, CENK YAVUZTURK, JEFFREY D. SPITLER, Development of an In-Situ System and Analysis Procedure for Measuring Ground Thermal Properties 365
- AYARI, ARSELENE M., DICK A. GROT, MONCEF KRARTI, Field Evaluation of Ventilation System Performance in Enclosed Parking Garages. 228
- AYARI, ARSELENE, MONCEF KRARTI, Evaluation of Design Ventilation Requirements for Enclosed Parking Facilities 216
- BAXTER, VAN D., JOHN A. SHONDER, PATRICK J. HUGHES, JEFF W. THORNTON, A Comparison of Vertical Ground Heat Exchanger Design Software for Commercial Applications 831
- BEARG, DAVID W., Monitoring for Ventilation and Airtightness 719
- BECK, JAMES V., JOHN A. SHONDER, Field Test of a New Method for Determining Soil Formation Thermal Conductivity and Borehole Resistance 843
- BESANT, ROBERT W., CAREY J. SIMONSON, WEI SHANG, Part-Load Performance of Energy Wheels: Part I, Wheel Speed Control 286
- BESANT, ROBERT W., CAREY J. SIMONSON, WEI SHANG, Part-Load Performance of Energy Wheels: Part II, Bypass Control And Correlations 301
- BESANT, ROBERT W., YAW ASIEDU, PEIHUA GU, A Simplified Procedure for HVAC Duct Sizing 124
- BEYERLEIN, ADOLPH L., ISMAIL KUL, DARRYL D. DESMARTEAU, Vapor-Liquid Equilibrium and Densities of RE-143a (CF_3OCH_3)/RE-218 ($\text{CF}_3\text{OCF}_2\text{CF}_3$) Mixtures as R-12 or R-22 Alternatives 351
- BOHLE, JÜRGEN, HERBERT KLAN, Design of Panel Heating and Cooling Systems 677
- BONNEFOI, FREDERIC, BJARNE W. OLESEN, ERIC MICHEL, MICHELE DE CARLI, Heat Exchange Coefficient Between Floor Surface and Space by Floor Cooling—Theory or a Question of Definition. 684
- BOWSER, DARA, DON FUGLER, WILLIAM KWAN, The Effects of Improved Residential 317
- BRAGA, SERGIO LEAL, SAMUEL YANA MOTTA, JOSÉ ALBERTO R. PARISE, Critical Flow of Refrigerants Through Adiabatic Capillary Tubes: Experimental Study of Zeotropic Mixtures R-407c and R-404a. 534
- BRAHAM, GEORGE D., Comparative Performance of U.K. Fabric Energy Storage Systems 811
- BRANDON, ROBERT J., CHRIS W. SNOEK, Microturbine Cogeneration. 669
- BRAUN, JAMES E., JASON T. LEROY, ECKHARD A. GROLL, Evaluating the Accuracy of PUREZ in Predicting Unitary Equipment Performance 200
- BROSSEAU, LISA M., DONALD VESLEY, THOMAS H. KUEHN, JOSH MELSON, HEE SIEW HAN, Duct Cleaning: A Review of Associated Health Effects and Results of Company and Expert Surveys. 180

BROSSEAU, LISA M., DONALD VESLEY, THOMAS H. KUEHN, JOSH MELSON, HEE SIEW HAN, Methods and Criteria for Cleaning Contaminated Ducts and Air-Handling Equipment.	188
BULLARD, CLARK W., YI LIU, Diabatic Flow Instabilities in Capillary Tube-Suction Line Heat Exchangers	517
BURKS, THOMAS F., DONALD G. COLLIVER, RICHARD S. GATES, HANZHONG ZHANG, Development of the Design Climatic Data for the 1997 ASHRAE Handbook-Fundamentals	3

C

CAMPBELL, ANTHONY B., SATISH S. NAIR, JOHN B. MILES, JOHN V. IOVINE, CHIN H. LIN, Space Suit Thermal Dynamics.	59
CANE, DOUGLAS, JEREMY M. GARNET, Update on Maintenance and Service Costs of Commercial Building Ground-Source Heat Pump Systems.	399
CAO, JIMING, RICHARD N. CHRISTENSEN, Comparison of Binary Mixture Heat and Mass Transfer Analysis with Single-Component Heat and Mass Transfer Analysis in the Design of GAX Absorber/Desorber	72
CASCIA, MARK A., Implementation of a Near-Optimal Global Set Point Control Method in a DDC Controller.	249
CAVESTRI, RICHARD C., WILLIAM R. SCHAFER, Measurement of Solubility, Viscosity, and Density of R-410a Refrigerant/lubricant Mixture	277
CHANG, YU-JUEI, SHI-KUO CHIANG, TSAIR-WANG CHUNG, CHI-CHUAN WANG, Two-Phase Frictional Characteristics of R-410A and Air-Water in a 5 mm Smooth Tube.	792
CHAPMAN, KIRBY S., JAMIE RUTLER, RICHARD D. WATSON, Impact of Heating Systems and Wall Surface Temperatures on Room Operative Temperature Fields.	506
CHAPMAN, KIRBY S., JEANNE M. PALMER, Direct Calculation of Mean Radiant Temperature Using Radiant Intensities	477
CHEN, QINGYAN, JELENA SREBRIC, LEON R. GLICKSMAN, A Coupled Airflow and Energy Simulation Program for Indoor Thermal Environmental Studies	465
CHIANG, SHI-KUO, YU-JUEI CHANG, TSAIR-WANG CHUNG, CHI-CHUAN WANG, Two-Phase Frictional Characteristics of R-410A and Air-Water in a 5 mm Smooth Tube.	792
CHIASSON, ANDREW D., SIMON J. REES, JEFFREY D. SPITLER, A Preliminary Assessment of the Effects of Ground-Water Flow on Closed-Loop Ground-source Heat Pump Systems.	380

CHO, DONGWOO, ARDESHIR MAHDAVI, ROBERT J. RIES, Infiltration, Natural Ventilation, and HVAC Performance in the Intelligent Workplace	728
CHRISTENSEN, RICHARD N., JIMING CAO, Comparison of Binary Mixture Heat and Mass Transfer Analysis with Single-Component Heat and Mass Transfer Analysis in the Design of GAX Absorber/Desorber	72
CHUNG, TSAIR-WANG, YU-JUEI CHANG, SHI-KUO CHIANG, CHI-CHUAN WANG, Two-Phase Frictional Characteristics of R-410A and Air-Water in a 5 mm Smooth Tube	792
CLEAR, ROBERT, DARIUSH K. ARASTEH, JOE HUANG, ROBIN D. MITCHELL, CHRISTIAN KOHLER, A Database of Window Annual Energy Use in Typical North American Single-Family Houses	562
COLLIVER, DONALD G., RICHARD S. GATES, THOMAS F. BURKS, HANZHONG ZHANG, Development of the Design Climatic Data for the 1997 ASHRAE Handbook-Fundamentals	3
CRAGG, CHRIS B.H., FRANK J. LENARDUZZI, H.S. RADHAKRISHNA, The Importance of Grouting to Enhance the Performance of Earth Energy Systems.	424
CURTISS, PETER S., Control of Distributed Electrical Generation Systems	661
CURTISS, PETER S., JAN F. KREIDER, Distributed Electrical Generation Technologies and Methods for Their Economic Assessment	645

D

DAMSHALA, PRAKASH R., Thermoeconomic Analysis of a CHP System by Iterative Numerical Techniques	327
DE CARLI, MICHELE, BJARNE W. OLESEN, ERIC MICHEL, FREDERIC BONNEFOI, Heat Exchange Coefficient Between Floor Surface and Space by Floor Cooling--Theory or a Question of Definition.	684
DESMARTEAU, DARRYL D., ISMAIL KUL, ADOLPH L. BEYERLEIN, Vapor-Liquid Equilibrium and Densities of RE-143a (CF ₃ OCH ₃)/RE-218 (CF ₃ OCF ₂ CF ₃) Mixtures as R-12 Or R-22 Alternatives	351
DESSIATOUN, S.V., YUAN ZHAO, MAJID MOLKI, MICHAEL M. OHADI, Flow Boiling of CO ₂ in Microchannels	437
DHAR, P.L., SANJEEV JAIN, S.C. KAUSHIK, Optimal Design of Liquid Desiccant Cooling Systems.	79
DORGAN, CHAD B., CHARLES E. DORGAN, ASHRAE's New Chiller Heat Recovery Application Guide.	152

DORGAN, CHARLES E., CHAD B. DORGAN, ASHRAE's New Chiller Heat Recovery Application Guide	152
DOYLE, CORMAC J., DONAL P. FINN, Control and Optimization Issues Associated with Algorithm-Controlled Refrigerant Throttling Devices	524
DURFEE, DAVID J., EDWARD A. VINEYARD, JAMES R. SAND, Parametric Analysis of Variables That Affect the Performance of a Desiccant Dehumidification System	87
DYER, JOSHUA M., BRIAN D. STOREY, JOHN L. HOKE, ANTHONY M. JACOBI, JOHN G. GEORGIADIS, An Experimental Investigation of the Effect of Hydrophobicity on the Rate of Frost Growth in Laminar Channel Flows	143

E

ELLIOTT, J. RICHARD, MARCIA L. HUBER, CYNTHIA D. HOLCOMB, STEPHANIE L. OUTCALT, Vapor-Liquid Equilibria for an R-134a/Lubricant Mixture: Measurements and Equation-of-State Modeling	768
ELOVITZ, DAVID M., Evaluating Smoke Management in a Large Volume Space	637
ERIKSSON, JÖRGEN B., TOR-GÖRAN MALMSTRÖM, Pressure Drops in T-Junctions—A Comparison	359

F

FINN, DONAL P., CORMAC J. DOYLE, Control and Optimization Issues Associated with Algorithm-Controlled Refrigerant Throttling Devices	524
FUGLER, DON, DARA BOWSER, WILLIAM KWAN, The Effects of Improved Residential Furnace Filtration on Airborne Particles	17

G

GARIMELLA, SRINIVAS, Microchannel Components for Absorption Space-Conditioning Systems	453
GARNET, JEREMY M., DOUGLAS CANE, Update on Maintenance and Service Costs of Commercial Building Ground-Source Heat Pump Systems	399
GATES, RICHARD S., DONALD G. COLLIVER, THOMAS F. BURKS, HANZHONG ZHANG, Development of the Design Climatic Data for the 1997 ASHRAE Handbook-Fundamentals	3

GAW, WAYNE, PETER SIMMONDS, STEFAN HOLST, STEPHANIE REUSS, Using Radiant Cooled Floors to Condition Large Spaces and Maintain Comfort Conditions	695
GEORGIADIS, JOHN G., JOSHUA M. DYER, BRIAN D. STOREY, JOHN L. HOKE, ANTHONY M. JACOBI, An Experimental Investigation of the Effect of Hydrophobicity on the Rate of Frost Growth in Laminar Channel Flows	143
GLICKSMAN, LEON R., JELENA SREBRIC, QINGYAN CHEN, A Coupled Airflow and Energy Simulation Program for Indoor Thermal Environmental Studies	465
GROLL, ECKHARD A., JASON T. LEROY, JAMES E. BRAUN, Evaluating the Accuracy of PUREZ in Predicting Unitary Equipment Performance	200
GROT, DICK A., ARSELENE M. AYARI, MONCEF KRARTI, Field Evaluation of Ventilation System Performance in Enclosed Parking Garages	228
GU, PEIHUA, YAW ASIEDU, ROBERT W. BESANT, A Simplified Procedure for HVAC Duct Sizing	124

H

HAN, HEE SIEW, LISA M. BROSEAU, DONALD VESLEY, THOMAS H. KUEHN, JOSH MELSON, Duct Cleaning: A Review of Associated Health Effects and Results of Company and Expert Surveys	180
HAN, HEE SIEW, LISA M. BROSEAU, DONALD VESLEY, THOMAS H. KUEHN, JOSH MELSON, Methods and Criteria for Cleaning Contaminated Ducts and Air-Handling Equipment	188
HANIBUCHI, HARUO, SHUICHI HOKOI, Simplified Method of Estimating Efficiency of Radiant and Convective Heating Systems	487
HAUSER, GERD, CHRISTOPH KEMPKE, BJARNE W. OLESEN, Computer Simulation of Hydronic Heating/Cooling System with Embedded Pipes	702
HAWTHORNE, WENDY A., SUSAN REILLY, The Impact of Glazing Selection on Residential Duct Design and Comfort	553
HAYASHI, KANETOSHI, KEN KASZA, A Method for Measuring Ice Slurry Particle Agglomeration in Storage Tanks	117
HODGE, B.K., ALI A. JALALZADEH-AZAR, W. GLENN STEELE, Performance Characteristics of a Commercially Available Gas-Fired Desiccant System	95

HOKE, JOHN L., JOSHUA M. DYER, BRIAN D. STOREY, ANTHONY M. JACOBI, JOHN G. GEORGIADIS, An Experimental Investigation of the Effect of Hydrophobicity on the Rate of Frost Growth in Laminar Channel Flows	143
HOKOI, SHUICHI, HARUO HANIBUCHI, Simplified Method of Estimating Efficiency of Radiant and Convective Heating Systems	487
HOLCOMB, CYNTHIA D., MARCIA L. HUBER, STEPHANIE L. OUTCALT, J. RICHARD ELLIOTT, Vapor-Liquid Equilibria for an R-134a/Lubricant Mixture: Measurements and Equation-of-State Modeling	768
HOLST, STEFAN, PETER SIMMONDS, STEPHANIE REUSS, WAYNE GAW, Using Radiant Cooled Floors to Condition Large Spaces and Maintain Comfort Conditions	695
HOSNI, MOHAMMAD H., JERRY M. SIPES, Experimental Water Vapor Permeability Results For Common Wall Materials	228
HUANG, JOE, DARIUSH K. ARASTEH, ROBIN D. MITCHELL, ROBERT CLEAR, CHRISTIAN KOHLER, A Database of Window Annual Energy Use in Typical North American Single-Family Houses	562
HUBER, MARCIA L., CYNTHIA D. HOLCOMB, STEPHANIE L. OUTCALT, J. RICHARD ELLIOTT, Vapor-Liquid Equilibria for an R-134a/Lubricant Mixture: Measurements and Equation-of-State Modeling	768
HUGHES, PATRICK J., JOHN A. SHONDER, VAN D. BAXTER, JEFF W. THORNTON, A Comparison of Vertical Ground Heat Exchanger Design Software for Commercial Applications	831
HUGHES, PATRICK J., MICHAELA A. MARTIN, MELISSA G. MADGETT, Comparing Maintenance Costs of Geothermal Heat Pump Systems with Other HVAC Systems: Preventive Maintenance Actions and Total Maintenance Costs	408
HUIZENGA, CHARLIE, PETER R. LYONS, DARIUSH ARASTEH, Window Performance for Human Thermal Comfort	594

I

IMBABI, MOHAMMED S., BRUCE J. TAYLOR, Environmental Design Using Dynamic Insulation	15
IOVINE, JOHN V., ANTHONY B. CAMPBELL, SATISH S. NAIR, JOHN B. MILES, CHIN H. LIN, Space Suit Thermal Dynamics	59

J

JACOBI, ANTHONY M., JOSHUA M. DYER, BRIAN D. STOREY, JOHN L. HOKE, JOHN G. GEORGIADIS, An Experimental Investigation of the Effect of Hydrophobicity on the Rate of Frost Growth in Laminar Channel Flows	143
JACOBI, ANTHONY M., SUNIL S. MEHENDALE, Evaporative Heat Transfer in Mesoscale Heat Exchangers	447
JACOBSEN, RICHARD T., STEVEN G. PENONCELLO, ZHENGJUN SHAN, A Fundamental Equation for the Calculation of the Thermodynamic Properties of Trifluoromethane (R-23)	739
JACOBSEN, RICHARD T., ZHENGJUN SHAN, STEVEN G. PENONCELLO, A Generalized Model for Viscosity and Thermal Conductivity of Trifluoromethane (R-23)	757
JAIN, SANJEEV, P.L. DHAR, S.C. KAUSHIK, Optimal Design of Liquid Desiccant Cooling Systems	79
JALALZADEH-AZAR, ALI A., W. GLENN STEELE, B.K. HODGE, Performance Characteristics of a Commercially Available Gas-Fired Desiccant System	95

K

KASUYA, ATSUSHI, KOICHIRO SHINKAI, MASAHIRO KATO, Performance Evaluation of Floor Thermal Storage System	311
KASZA, KEN, KANETOSHI HAYASHI, A Method for Measuring Ice Slurry Particle Agglomeration in Storage Tanks	117
KATO, MASAHIRO, KOICHIRO SHINKAI, ATSUSHI KASUYA, Performance Evaluation of Floor Thermal Storage System	311
KAUSHIK, S.C., SANJEEV JAIN, P.L. DHAR, Optimal Design of Liquid Desiccant Cooling Systems	79
KAVANAUGH, STEPHEN P., Field Tests for Ground Thermal Properties—Methods and Impact on Ground-Source Heat Pump Design	851
KEMPKES, CHRISTOPH, GERD HAUSER, BJARNE W. OLESEN, Computer Simulation of Hydronic Heating/Cooling System with Embedded Pipes	702
KLAN, HERBERT, JÜRGEN BOHLE, Design of Panel Heating and Cooling Systems	677
KLEIN, SANFORD A., DAVID D. SCHMITT, DOUGLAS T. REINDL, Automated Generation of Hourly Design Sequences	158
KLOTE, JOHN H., New Developments In Atrium Smoke Management	620

KOHLER, CHRISTIAN, DARIUSH K. ARASTEH, JOE HUANG, ROBIN D. MITCHELL, ROBERT CLEAR, A Database of Window Annual Energy Use in Typical North American Single-Family Houses.	562
KOLOKOTRONI, MARIA, SAVVAS A. TASSOU, WEIZHONG XIANG, Church Heating: Numerical Modeling and Comparison Between Radiant and Forced Convection Systems.	495
KRARTI, MONCEF, ARSELENE AYARI, Evaluation of Design Ventilation Requirements for Enclosed Parking Facilities.	216
KRARTI, MONCEF, ARSELENE M. AYARI, DICK A. GROT, Field Evaluation of Ventilation System Performance in Enclosed Parking Garages.	228
KREIDER, JAN F., PETER S. CURTISS, Distributed Electrical Generation Technologies and Methods for Their Economic Assessment.	645
KUEHN, THOMAS H., LISA M. BROUSSEAU, DONALD VESLEY, JOSH MELSON, HEE SIEW HAN, Duct Cleaning: A Review of Associated Health Effects and Results of Company and Expert Surveys.	180
KUEHN, THOMAS H., LISA M. BROUSSEAU, DONALD VESLEY, JOSH MELSON, HEE SIEW HAN, Methods and Criteria for Cleaning Contaminated Ducts and Air-Handling Equipment.	188
KUL, ISMAIL, DARRYL D. DESMARTEAU, ADOLPH L. BEYERLEIN, Vapor-Liquid Equilibrium and Densities of RE-143a (CF ₃ OCH ₃)/RE-218 (CF ₃ OCF ₂ CF ₃) Mixtures as R-12 Or R-22 Alternatives.	351
KWAN, WILLIAM, DON FUGLER, DARA BOWSER, The Effects of Improved Residential Furnace Filtration on Airborne Particles.	317

L

LAMBERTS, ROBERTO, ANTONIO AUGUSTO DE PAULA XAVIER, Indices of Thermal Comfort Developed from Field Survey in Brazil.	45
LEBRUN, JEAN J., PIERRE J. NUSGENS, Simplified Analysis of Building Thermal Storage Effects.	801
LEE, SHUN-FU, S.A. SHERIF, Second Law Analysis of Multi-Stage Lithium Bromide/Water Absorption Heat Transformers.	105
LENARDUZZI, FRANK J., CHRIS B.H. CRAGG, H.S. RADHAKRISHNA, The Importance of Grouting to Enhance the Performance of Earth Energy Systems.	424
LEROY, JASON T., ECKHARD A. GROLL, JAMES E. BRAUN, Evaluating the Accuracy of PUREZ in Predicting Unitary Equipment Performance.	200

LIN, CHIN H., ANTHONY B. CAMPBELL, SATISH S. NAIR, JOHN B. MILES, JOHN V. IOVINE, Space Suit Thermal Dynamics.	59
LIU, YI, CLARK W. BULLARD, Diabatic Flow Instabilities in Capillary Tube-Suction Line Heat Exchangers.	517
LOUGHEED, GARY D., CAM MCCARTNEY, BRUCE C. TABER, Smoke Movement for Sprinklered Fires.	605
LYONS, PETER R., DARIUSH ARASTEH, CHARLIE HUIZENGA, Window Performance for Human Thermal Comfort.	594

M

MADGETT, MELISSA G., MICHAELA A. MARTIN, PATRICK J. HUGHES, Comparing Maintenance Costs of Geothermal Heat Pump Systems with Other HVAC Systems: Preventive Maintenance Actions and Total Maintenance Costs.	408
MAGEE, R.J., C.Y. SHAW, G.F. POIRIER, Measured Airtightness of an Installed Skylight.	713
MAHDAVI, ARDESHIR, ROBERT J. RIES, DONGWOO CHO, Infiltration, Natural Ventilation, and HVAC Performance in the Intelligent Workplace.	728
MALMSTRÖM, TOR-GÖRAN, JÖRGEN B. ERIKSSON, Pressure Drops in T-Junctions—A Comparison.	359
MANNING, ANDREW, FARHAD MEMARZADEH, GERALD L. RISKOWSKI, Analysis of Air Supply Type and Exhaust Location in Laboratory Animal Research Facilities Using CFD.	877
MARTIN, MICHAELA A., MELISSA G. MADGETT, PATRICK J. HUGHES, Comparing Maintenance Costs of Geothermal Heat Pump Systems with Other HVAC Systems: Preventive Maintenance Actions and Total Maintenance Costs.	408
MCCARTNEY, CAM, GARY D. LOUGHEED, BRUCE C. TABER, Smoke Movement for Sprinklered Fires.	605
MEHENDALE, SUNIL S., ANTHONY M. JACOBI, Evaporative Heat Transfer in Mesoscale Heat Exchangers.	447
MELSON, JOSH, LISA M. BROUSSEAU, DONALD VESLEY, THOMAS H. KUEHN, HEE SIEW HAN, Duct Cleaning: A Review of Associated Health Effects and Results of Company and Expert Surveys.	180
MELSON, JOSH, LISA M. BROUSSEAU, DONALD VESLEY, THOMAS H. KUEHN, HEE SIEW HAN, Methods and Criteria for Cleaning Contaminated Ducts and Air-Handling Equipment.	188

MEMARZADEH, FARHAD, ANDREW MANNING, GERALD L. RISKOWSKI, Analysis of Air Supply Type and Exhaust Location in Laboratory Animal Research Facilities Using CFD	877
MEMARZADEH, FARHAD, GERALD L. RISK- OWSKI, Investigation of Static Microisolators in Wind Tunnel Tests and Validation of CFD Cage Model	867
MEMARZADEH, FARHAD, GERALD L. RISK- OWSKI, Ventilation Design in Animal Research Facilities Using Static Microisolators	859
MICHEL, ERIC, BJARNE W. OLESEN, FREDERIC BONNEFOI, MICHELE DE CARLI, Heat Exchange Coefficient Between Floor Surface and Space by Floor Cooling—Theory or a Question of Definition	684
MILES, JOHN B., ANTHONY B. CAMPBELL, SATISH S. NAIR, JOHN V. IOVINE, CHIN H. LIN, Space Suit Thermal Dynamics.	59
MILKE, JAMES A., Evaluating the Early Develop- ment of Smoke Hazard from Fires in Large Spaces	627
MITCHELL, ROBIN D., DARIUSH K. ARASTEH, JOE HUANG, ROBERT CLEAR, CHRISTIAN KOHLE, A Database of Window Annual Energy Use in Typical North American Single- Family Houses.	562
MIYANAGA, TOSHIYUKI, YUKIO NAKANO, TAT- SUO OKA, Comprehensive Evaluation of Radiant Cooling System Integrated with Ice Storage System	169
MOLKI, MAJID, YUAN ZHAO, MICHAEL M. OHA- DI, S.V. DESSIATOUN, Flow Boiling of CO ₂ in Microchannels	437
MOTTA, SAMUEL YANA, SERGIO LEAL BRAGA, JOSÉ ALBERTO R. PARISE, Critical Flow of Refrigerants Through Adiabatic Capillary Tubes: Experimental Study of Zeotropic Mix- tures R-407c and R-404a	534

N

NAIR, SATISH S., ANTHONY B. CAMPBELL, JOHN B. MILES, JOHN V. IOVINE, CHIN H. LIN, Space Suit Thermal Dynamics.	59
NAKANO, YUKIO, TOSHIYUKI MIYANAGA, TAT- SUO OKA, Comprehensive Evaluation of Radiant Cooling System Integrated with Ice Storage System	169
NUSGENS, PIERRE J., JEAN J. LEBRUN, Simpli- fied Analysis of Building Thermal Storage Effects	801

O

OHADI, MICHAEL M., YUAN ZHAO, MAJID MOL- KI, S.V. DESSIATOUN, Flow Boiling of CO ₂ in Microchannels	437
OKA, TATSUO, YUKIO NAKANO, TOSHIYUKI MIYANAGA, Comprehensive Evaluation of Radiant Cooling System Integrated with Ice Storage System	169
OLESEN, BJARNE W., ERIC MICHEL, FREDERIC BONNEFOI, MICHELE DE CARLI, Heat Exchange Coefficient Between Floor Surface and Space by Floor Cooling—Theory or a Question of Definition.	684
OLESEN, BJARNE W., GERD HAUSER, CHRIS- TOPH KEMPKES, Computer Simulation of Hydronic Heating/Cooling System with Embedded Pipes	702
OUTCALT, STEPHANIE L., MARCIA L. HUBER, CYNTHIA D. HOLCOMB, J. RICHARD ELLIOTT, Vapor-Liquid Equilibria for an R- 134a/Lubricant Mixture: Measurements and Equation-of-State Modeling	768

P

PALMER, JEANNE M., KIRBY S. CHAPMAN, Direct Calculation of Mean Radiant Tempera- ture Using Radiant Intensities	477
PARISE, JOSÉ ALBERTO R., SAMUEL YANA MOTTA, SERGIO LEAL BRAGA, Critical Flow of Refrigerants Through Adiabatic Capillary Tubes: Experimental Study of Zeotropic Mix- tures R-407c and R-404a.	534
PAYVAR, PARVIZ, ROBERT A. TATARA, Effects of Oil on Boiling of Replacement Refrigerants Flowing Normal to a Tube Bun- dle—Part I: R-123	777
PAYVAR, PARVIZ, ROBERT A. TATARA, Effects of Oil on Boiling of Replacement Refrigerants Flowing Normal to a Tube Bun- dle—Part II: R-134a.	786
PENONCELLO, STEVEN G., ZHENGJUN SHAN, RICHARD T. JACOBSEN, A Fundamental Equation for the Calculation of the Thermody- namic Properties of Trifluoromethane (R-23)	739
PENONCELLO, STEVEN G., ZHENGJUN SHAN, RICHARD T. JACOBSEN, A Generalized Model for Viscosity and Thermal Conductivity of Trifluoromethane (R-23)	757
POIRIER, G.F., C.Y. SHAW, R.J. MAGEE, Mea- sured Airtightness of an Installed Skylight	713

R

- RADHAKRISHNA, H.S., FRANK J. LENARDUZZI, CHRIS B.H. CRAGG, The Importance of Grouting to Enhance the Performance of Earth Energy Systems 424
- REES, SIMON J., ANDREW D. CHIASSON, JEFFREY D. SPITLER, A Preliminary Assessment of the Effects of Ground-Water Flow on Closed-Loop Ground-Source Heat Pump Systems 380
- REILLY, SUSAN, WENDY A. HAWTHORNE, The Impact of Glazing Selection on Residential Duct Design and Comfort 553
- REINDL, DOUGLAS T., DAVID D. SCHMITT, SANFORD A. KLEIN, Automated Generation of Hourly Design Sequences 158
- REUSS, STEPHANIE, PETER SIMMONDS, STEFAN HOLST, WAYNE GAW, Using Radiant Cooled Floors to Condition Large Spaces and Maintain Comfort Conditions 695
- RIES, ROBERT J., ARDESHIR MAHDAVI, DONGWOO CHO, Infiltration, Natural Ventilation, and HVAC Performance in the Intelligent Workplace 728
- RISKOWSKI, GERALD L., ANDREW MANNING, FARHAD MEMARZADEH, Analysis of Air Supply Type and Exhaust Location in Laboratory Animal Research Facilities Using CFD 877
- RISKOWSKI, GERALD L., FARHAD MEMARZADEH, Investigation of Static Microisolators in Wind Tunnel Tests and Validation of CFD Cage Model 867
- RISKOWSKI, GERALD L., FARHAD MEMARZADEH, Ventilation Design in Animal Research Facilities Using Static Microisolators 859
- RUTLER, JAMIE, KIRBY S. CHAPMAN, RICHARD D. WATSON, Impact of Heating Systems and Wall Surface Temperatures on Room Operative Temperature Fields 506

S

- SAND, JAMES R., EDWARD A. VINEYARD, DAVID J. DURFEE, Parametric Analysis of Variables That Affect the Performance of a Desiccant Dehumidification System 87
- SCHAFER, WILLIAM R., RICHARD C. CAVES-TRI, Measurement of Solubility, Viscosity, and Density of R-410a Refrigerant/lubricant Mixtures 277
- SCHMITT, DAVID D., SANFORD A. KLEIN, DOUGLAS T. REINDL, Automated Generation of Hourly Design Sequences 158
- SHAH, BIPIN V., DANIEL J. WISE, An Assessment of Interlaboratory Reproducibility in Fenestration Energy Ratings 575

- SHAN, ZHENGJUN, STEVEN G. PENONCELLO, RICHARD T. JACOBSEN, A Fundamental Equation for the Calculation of the Thermodynamic Properties of Trifluoromethane (R-23) ... 739
- SHAN, ZHENGJUN, STEVEN G. PENONCELLO, RICHARD T. JACOBSEN, A Generalized Model for Viscosity and Thermal Conductivity of Trifluoromethane (R-23) 757
- SHANG, WEI, CAREY J. SIMONSON, ROBERT W. BESANT, Part-Load Performance of Energy Wheels: Part I, Wheel Speed Control 286
- SHANG, WEI, CAREY J. SIMONSON, ROBERT W. BESANT, Part-Load Performance of Energy Wheels: Part II - Bypass Control and Correlations 301
- SHAVIT, GIDEON, Control Requirements for CoGen and MicroGen Plants in a Deregulated Electricity Industry 655
- SHAW, C.Y., R.J. MAGEE, G.F. POIRIER, Measured Airtightness of an Installed Skylight 713
- SHERIF, S.A., SHUN-FU LEE, Second Law Analysis of Multi-Stage Lithium Bromide/Water Absorption Heat Transformers 105
- SHINKAI, KOICHIRO, ATSUSHI KASUYA, MASAHIRO KATO, Performance Evaluation of Floor Thermal Storage System 311
- SHONDER, JOHN A., JAMES V. BECK, Field Test of a New Method for Determining Soil Formation Thermal Conductivity and Borehole Resistance 843
- SHONDER, JOHN A., VAN D. BAXTER, PATRICK J. HUGHES, JEFF W. THORNTON, A Comparison of Vertical Ground Heat Exchanger Design Software for Commercial Applications 831
- SIMMONDS, PETER, STEFAN HOLST, STEPHANIE REUSS, WAYNE GAW, Using Radiant Cooled Floors to Condition Large Spaces and Maintain Comfort Conditions. 695
- SIMONSON, CAREY J., WEI SHANG, ROBERT W. BESANT, Part-Load Performance of Energy Wheels: Part I, Wheel Speed Control 286
- SIMONSON, CAREY J., WEI SHANG, ROBERT W. BESANT, Part-Load Performance of Energy Wheels: Part II, Bypass Control And Correlations 301
- SIPES, JERRY M., MOHAMMAD H. HOSNI, Experimental Water Vapor Permeability Results For Common Wall Materials 238
- SNOEK, CHRIS W., ROBERT J. BRANDON, Microturbine Cogeneration 669
- SO, ALBERT T.P., WAI L. TSE, Implementation of Comfort-Based Air-Handling Unit Control Algorithms 29
- SPITLER, JEFFREY D., ANDREW D. CHIASSON, SIMON J. REES, A Preliminary Assessment of the Effects of Ground-Water Flow on Closed-Loop Ground-Source Heat Pump Systems. 380

SPITLER, JEFFREY D., WARREN A. AUSTIN, III, CENK YAVUZTURK, Development of an In- Situ System and Analysis Procedure for Mea- suring Ground Thermal Properties	365
SREBRIC, JELENA, QINGYAN CHEN, LEON R. GLICKSMAN, A Coupled Airflow and Energy Simulation Program for Indoor Thermal Environmental Studies	465
STEELE, W. GLENN, ALI A. JALALZADEH-AZAR, B.K. HODGE, Performance Characteristics of a Commercially Available Gas-Fired Desiccant System	95
STEWART, WILLIAM E., JR., Improved Fluids for Naturally Stratified Chilled Water Storage Systems	264
STOREY, BRIAN D., JOSHUA M. DYER, JOHN L. HOKE, ANTHONY M. JACOBI, JOHN G. GEORGIADIS, An Experimental Investigation of the Effect of Hydrophobicity on the Rate of Frost Growth in Laminar Channel Flows	143

T

TABER, BRUCE C., GARY D. LOUGHEED, CAM MCCARTNEY, Smoke Movement for Sprin- kled Fires	605
TASSOU, SAVVAS A., WEIZHONG XIANG, MAR- IA KOLOKOTRONI, Church Heating: Numeri- cal Modeling and Comparison Between Radiant and Forced Convection Systems	495
TATARA, ROBERT A., PARVIZ PAYVAR, Effects of Oil on Boiling of Replacement Refrigerants Flowing Normal to a Tube Bun- dle—Part I: R-123	777
TATARA, ROBERT A., PARVIZ PAYVAR, Effects of Oil on Boiling of Replacement Refrigerants Flowing Normal to a Tube Bun- dle—Part II: R-134a	786
TAYLOR, BRUCE J., MOHAMMED S. IMBABI, Environmental Design Using Dynamic Insula- tion	15
THORNTON, JEFF W., JOHN A. SHONDER, VAN D. BAXTER, PATRICK J. HUGHES, A Comparison of Vertical Ground Heat Exchanger Design Software for Commercial Applications	831
TSE, WAI L., ALBERT T.P. SO, Implementation of Comfort-Based Air-Handling Unit Control Algo- rithms	29

V

VESLEY, DONALD, LISA M. BROSSAU, THO- MAS H. KUEHN, JOSH MELSON, HEE SIEW	
--	--

HAN, Duct Cleaning: A Review of Associated Health Effects and Results of Company and Expert Surveys	180
---	-----

VESLEY, DONALD, LISA M. BROSSAU, THO- MAS H. KUEHN, JOSH MELSON, HEE SIEW HAN, Methods and Criteria for Cleaning Con- taminated Ducts and Air-Handling Equipment	188
VINEYARD, EDWARD A., JAMES R. SAND, DAV- ID J. DURFEE, Parametric Analysis of Vari- ables That Affect the Performance of a Desiccant Dehumidification System	87

W

WANG, CHI-CHUAN, YU-JUEI CHANG, SHI-KUO CHIANG, TSAIR-WANG CHUNG, Two-Phase Frictional Characteristics of R-410A and Air- Water in a 5 mm Smooth Tube	792
WATSON, RICHARD D., KIRBY S. CHAPMAN, JAMIE RUTLER, Impact of Heating Systems and Wall Surface Temperatures on Room Operative Temperature Fields	506
WISE, DANIEL J., BIPIN V. SHAH, An Assessment of Interlaboratory Reproducibility in Fenestra- tion Energy Ratings	575

X

XAVIER, ANTONIO AUGUSTO DE PAULA, ROB- ERTO LAMBERTS, Indices of Thermal Com- fort Developed from Field Survey in Brazil	45
XIANG, WEIZHONG, SAVVAS A. TASSOU, MAR- IA KOLOKOTRONI, Church Heating: Numeri- cal Modeling and Comparison Between Radiant and Forced Convection Systems	495

Y

YAVUZTURK, CENK, WARREN A. AUSTIN, III, JEFFREY D. SPITLER, Development of an In- Situ System and Analysis Procedure for Mea- suring Ground Thermal Properties	365
---	-----

Z

ZHANG, HANZHONG, DONALD G. COLLIVER, RICHARD S. GATES, THOMAS F. BURKS, Development of the Design Climatic Data for the 1997 ASHRAE Handbook-Fundamentals	3
ZHAO, YUAN, MAJID MOLKI, MICHAEL M. OHA- DI, S.V. DESSIATOUN, Flow Boiling of CO ₂ in Microchannels	437

Index of Technical and Symposium Papers

Vol. 106, Part 2

TITLES

A

- Air Filter Performance Under Variable Air Volume Conditions, RICHARD D. RIVERS, DAVID J. MURPHY, JR. 131
- Air Leakage Through Automatic Doors, GRENVILLE K. YUILL, REBECCA UPHAM, CHEN HUI 145
- Air Temperature Depression and Potential Icing at the Inlet of Stationary Combustion Turbines, WILLIAM E. STEWART, JR., ANTHONY B. PARRACK 318
- Analysis of Electric Energy Consumption in an Office Building in Saudi Arabia, SYED M. HASNAIN, MOHAMED S. SMIAI, ABDULRAHMAN M. AL-IBRAHIM, SALEH H. AL-AWAJI 173
- Analysis of Refrigerator / Freezer Appliances Having Dual Refrigeration Cycles, ANDRÉ I. GAN, SANFORD A. KLEIN, DOUGLAS T. REINDL ... 185
- Angle Factors Between Human Body and Rectangular Planes Calculated by a Numerical Model, YOSHIICHI OZEKI, MASAOKI KONISHI, CHIE NARITA, SHIN-ICHI TANABE 511
- Applicable Input Data for a Proposed Ventilation Modeling Data Guide, MALCOLM ORME 395

C

- Calculation of Room Velocity Using Kinetic Energy Balance, KIM H. HAGSTRÖM, KAI SIRÉN 3
- Case Study of Condensing Boiler Energy Savings, PERRY L. BOESCHEN, BRYAN R. BECKER 96
- Comparative Analysis of HVAC Systems That Minimize the Risk of Airborne Infectious Disease Transmission, ALEXANDRA DRAGAN 650
- Comparative Analysis of Life-Cycle Costs of Geothermal Heat Pumps and Three Conventional HVAC Systems, JOHN A. SHONDER, MICHAELA A. MARTIN, HOWARD A. MCLAIN, PATRICK J. HUGHES 551
- Comparative Study to Investigate Operating and Control Strategies for Hybrid Ground-Source Heat Pump Systems Using a Short Time-Step Simulation Model, CENK YAVUZTURK, JEFFREY D. SPITLER 192
- Comparative Ventilation Systems Tests in a Mixed Climate, JOHN K. HOLTON, TIMOTHY R. BEGGS 692

- Comparison of Manual Load Calculation Using Simplified Weather Data with Simulation and Hourly Weather Data, GEORGE BOWMAN, MICHAEL J. HOLMES, GEOFF J. LEVERMORE 475
- Computational Study of Heat Transfer and Friction Characteristics of a Smooth Wavy Fin Heat Exchanger, A. MING ZHANG, SCOTT D. DAHL 864
- Computer Analysis and Comparison of Experimental Data for Moisture Accumulation in Concrete Masonry Walls, JERRY M. SIPES, MOHAMMAD H. HOSNI 347
- Consideration of Transient Response and Energy Cost in Performance Evaluation of a Desiccant Dehumidification System, ALI A. JALALZADEH-AZAR 210
- Contribution of Stratified Thermal Storage to Cost-Effective Trigeneration Project, SHASHI DHARMADHIKARI, DIDIER PONS, FRANÇOIS PRINCIPAUD 912
- Cooling Thermal Storage Capital Cost Economies, JIM B. SAWERS, ROBERT AKKERMAN 905
- Cost of Increased Energy Efficiency for Residential Water Heaters, ALEX B. LEKOV, JAMES D. LUTZ, CAMILLA DUNHAM WHITEHEAD, JAMES E. MCMAHON 875

D

- Development of Expanded AMeDAS Weather Data for Building Energy Calculation in Japan, HIROSHI AKASAKA, HIDEYO NIMIYA, KAZUHIRO SOGA, SHIN-ICHI MATSUMOTO, KAZUO EMURA, NOBUHIRO MIKI, ETSUKO EMURA, KOJI TAKEMASA 455
- Development of a Generalized Neural Network Model to Detect Faults in Building Energy Performance -- Part I, MARCUS R.B. BREEKWEG, PETER GRUBER, OSMAN AHMED 61
- Development of a Generalized Neural Network Model to Detect Faults in Building Energy Performance -- Part II, MARCUS R.B. BREEKWEG, PETER GRUBER, OSMAN AHMED 74
- Development of Guidelines for Assessing the Environmental Benefits of Heat Recovery Heat Pumps, R.L. DOUGLAS CANE, JEREMY M. GARNET, CHRISTOPHER J. IRELAND 217
- Discomfort Due to Skin Humidity with Different Fabric Textures and Materials, JØRN TOFTUM, L.W. RASMUSSEN, J. MACKEPFRANG, P. OLE FANGER 521
- Dynamic Ice - Low-Cost Alternative for New Construction, KIRBY P. NELSON 920

E

Economic Analysis of Foundation Heat Gain for Refrigerated Warehouses, PIRAWAS CHUAN-GCHID, MONCEF KRARTI	229
Economizer Control, KALMAN I. KRAKOW, FENG ZHAO, ALI E. MUHSIN	13
Effect of Data Period-of-Record on Estimation of HVAC&R Design Temperatures, DONALD G. COLLIVER, RICHARD S. GATES	466
Effective UVGI System Design Through Improved Modeling, W.J. KOWALSKI, WILLIAM P. BAHNFLETH	721
Effects of Lubricant Miscibility and Viscosity on the Performance of an R-134a Refrigerating System, PREDRAG POPOVIC, MICHAEL PATE	670
Effects of Measurement and Formulation Error on Thermal Comfort Indices in the ASHRAE Database of Field Studies, MICHAEL A. HUMPHREYS, J. FERGUS NICOL	493
Energy Use of Ventilation Air Conditioning Options for Ground-Source Heat Pump Systems, STEVEN P. KAVANAUGH, LAN XIE	543
Error Analysis of Measurement and Control Techniques of Outside Air Intake Rates in VAV Systems, CHRISTOPHER C. SCHROEDER, MONCEF KRARTI, MICHAEL J. BRANDEMUEHL	26
Estimation of Annual Energy-Saving Contribution of an Automated Blind System, M.B. ULLAH, GERALDINE LEFEBVRE	408
Evaluation of Hydraulic Stability and Its Application in Hydronic Systems, XUZHONG QIN, YI JIANG, GANG LIU	253
Evaluation of the Duct Leakage Estimation Procedures of ASHRAE Standard 152P, JAMES B. CUMMINGS, CHARLES R. WITHERS, JR., NEIL A. MOYER	784
Exergy Efficiencies of Sensible, Mixed Thermal Energy Storage Systems, IBRAHIM DINCER, MARC A. ROSEN	260
Experimental Analysis of Measurement and Control Techniques of Outside Air Intake Rates in VAV Systems, MONCEF KRARTI, CHRISTOPHER C. SCHROEDER, ERIC JEANETTE, MICHAEL J. BRANDEMUEHL	39
Experimental Evaluation of Five Refrigerants as Replacements for R-22, JOSUA P. MEYER	583
Experimental Procedure and Uncertainty Analysis of a Guarded Hotbox Method to Determine the Thermal Transmission Coefficient of Skylights and Sloped Glazing, A. HAKIM ELMAHDY, K. HADDAD	601

F

Fault Detection and Diagnosis in Chillers--Part I: Model Development and Application, IAN B.D. MCINTOSH, JOHN W. MITCHELL, WILLIAM A. BECKMAN	268
Field Evaluation of a Residential Hydronic Distribution System in the Cooling Mode, EDWARD A. VINEYARD, RANDALL L. LINKOUS	806
Field Validation of Standard 152P, PAUL W. FRANCISCO, LARRY PALMITER	771

G

Geology and the Ground Heat Exchanger: What Engineers Need to Know, HARVEY M. SACHS, DAVID R. DINSE	421
GSHP Bore Field Performance Comparisons of Standard and Thermally Enhanced Grout, STEVEN W. CARLSON	442

H

Health Care Facility Design Manual - Room Design, RICHARD D. HERMANS	762
HVAC Design Approach and Design Criteria for Health Care Facilities, ALEXANDRA DRAGAN	637
HVAC Systems for Inpatient Rooms, ANAND K. SETH, GREGORY O. DOYLE, TEERACHAI SRISIRIKUL	625
Hydraulic-Powered Fan Coil for Advanced Hydronic Distribution Systems, Part I: Thermal Performance and Energy Characterization of Conventional Fan Coil Units, EVELYN BASKIN, EDWARD A. VINEYARD, ESSAM A. IBRAHIM	828
Hydraulic-Powered Fan Coil for Advanced Hydronic Distribution Systems, Part II: Thermal Performance and Energy Requirements of Modified Fan-Coil Units, EVELYN BASKIN, EDWARD A. VINEYARD, ESSAM A. IBRAHIM	837
Hydraulic Process Fault Diagnosis and Parameter Identification in District Heating Networks, YI JIANG, XUZHONG QIN	284
Hydrodynamic Characteristics of Propane (R-290), Isobutane (R-600a), and 50/50 Mixture, GURSARAN D. MATHUR	571

I

Impact of Chemistry on the Use of Polyol Ester Lubricants in Refrigeration, The, KENNETH C. LILJE	661
---	-----

- Impact of Temperature Control Approaches on the Thermal Performance of a Household Refrigerator, XIAOYONG FU 292
- Implications of the Measured Performance of Variable Flow Pumping Systems in Geothermal and Water Loop Heat Pump Applications, The, HUGH I. HENDERSON, JR., MUKESH K. KHATTAR, STEVE W. CARLSON, ADAM C. WALBURGER 533
- Inpatient Facility Needs, THERESA GALLIVAN, DAVID HANITCHAK, ANAND K. SETH. 646

M

- Measurement of Thermal Conductivity for Three Borehole Fill Materials Used for GSHP, QIANG ZHANG, WILLIAM E. MURPHY 434
- Measurement of Ventilation and Interzonal Distribution in Single-Family Homes, ARMIN F. RUDD, JOSEPH W. LSTIBUREK 709
- Methodology for Minimizing Risk from Airborne Organisms in Hospital Isolation Rooms, FARHAD MEMARZADEH, JANE JIANG 731
- Model for Simulating the Performance of a Shallow Pond as a Supplemental Heat Rejecter with Closed-Loop Ground-Source Heat Pump Systems, A, ANDREW D. CHIASSON, JEFFREY D. SPITLER, SIMON J. REES, MARVIN D. SMITH .. 71
- Modeling Frost Characteristics on Heat Exchanger Fins: Part I, Numerical Model, HONG CHEN, LEENA THOMAS, ROBERT W BESANT 357
- Modeling Frost Characteristics on Heat Exchanger Fins: Part II, Model Validation and Limitations, HONG CHEN, LEENA THOMAS, ROBERT W. BESANT 368
- Monitoring and Evaluating a Year-Round Radiant/Convective System, DAVID G. SCHEATZLE ... 823
- Monte Carlo Approach to the Calculation of Energy Consumption for Residential Gas-Fired Water Heaters, A, JAMES D. LUTZ, XIAOMIN LIU, ALEX B. LEKOV, CAMILLA DUNHAM WHITEHEAD, JAMES E. MCMAHON 892

N

- New Quasi-Static Cogeneration Model, A, PRADEEP K. BANSAL, JUSTIN M. O'BRIEN... 161
- Numerical Analysis of Three-Dimensional Heat Transfer and Fluid Flow in Chevron Plate Channels, A, JIIN-YUH JANG, CHIEN-NAN LIN . 856

O

- On the Temperatures in Forced-Ventilation Fires, WAN K. CHOW 298

- Outdoor Temperature and Indoor Thermal Comfort: Raising the Precision of the Relationship for the 1998 ASHRAE Database of Field Studies, MICHAEL A. HUMPHREYS, J. FERGUS NICOL 485

P

- Parametric Analysis and Development of a Design Tool for Foundation Heat Gain for Coolers, PIRAWAS CHUANGCHID, MONCEF KRARTI... 240
- Physical Model of an Air-Conditioned Space for Control Analysis, MASATO KASAHARA, YOSHIKI KUZUU, TADAHIKO MATSUBA 304

R

- Rationalization and Optimization of Heating Systems Coupled to Ground-Source Heat Pumps, BIROL İ. KILKIS 817
- Regulations on Grouting for Closed-Loop Ground-Coupled Heat Pumps in the United States, KAREN R. DEN BRAVEN 447
- Representative Operating Problems of Commercial Ground-Source and Groundwater-Source Heat Pumps, JITENDRA B. SINGH, GUSTAV FOSTER, JR., ARTHUR W. HUNT 561
- Responses of Disabled, Temporarily Ill, and Elderly Persons to Thermal Environments, FARIBORZ HAGHIGHAT, AHMED C. MEGRI, GIOVANNA DONNINI, GIOVANNI GIORGI 329

S

- Semi-Empirical Method for Representing Domestic Refrigerator/Freezer Compressor Calorimeter Test Data, A, DAGMAR I. JÄHNIG, DOUGLAS T. REINDL, SANFORD A. KLEIN 122
- Simulation of a Naturally Ventilated Building at Different Locations, GEOFF J. LEVERMORE, ALAN M. JONES, ANDREW J. WRIGHT 402
- Surface Temperature Measurements Inside an Insulated Glazing Unit Using Liquid Crystals, STÉPHANE HALLÉ, MICHEL A. BERNIER 591

T

- Temperature and Humidity: Important Factors for Perception of Air Quality and for Ventilation Requirements, LEI FANG, GEO CLAUSEN, P. OLE FANGER. 503
- Thermal Comfort, Uniformity, and Ventilation Effectiveness in Patient Rooms: Performance Assessment Using Ventilation Indices, FARHAD MEMARZADEH, ANDY MANNING 748

- Thermal Performance of Residential Electric Water Heaters Using Alternative Blowing Agents, A. HUNTER FANNEY, ROBERT R. ZARR, JAREB D. KETAY-PAPROCKI..... 377
- 3-D Simulation of Thermal-Hydraulic Characteristics of Louvered γ -and-Tube Heat Exchangers With Oval Tubes, MIN-SHENG LIU, JIN-SHENG LEU, JANE-SUNN LIAW, CHI-CHUAN WANG..... 849

U

- U-Factors of Flat and Domed Skylights, JOSEPH H. KLEMS..... 614

V

- Validation of ASHRAE Standard 152P in Basement Warm-Air Distribution Systems, PETER R. STRUNK..... 796
- Velocity Decay in Air Jets for HVAC Applications, ZOU YUE..... 53
- Ventilation and Air Quality in Indoor Ice Skating Arenas, CHUNXIN YANG, PHILIP DEMOKRITOU, QINGYAN CHEN, JOHN SPENGLER, AUSTIN PARSONS..... 338

W

- Whole-House Ventilation Strategies to Meet Proposed Standard 62.2: Energy Cost Considerations, CRAIG P. WRAY, NANCE E. MATSON, MAX H. SHERMAN..... 681

AUTHORS

A

- AHMED, OSMAN, MARCUS R.B. BREEKWEG, PETER GRUBER, Development of a Generalized Neural Network Model to Detect Faults in Building Energy Performance -- Part I..... 61
- AHMED, OSMAN, MARCUS R.B. BREEKWEG, PETER GRUBER, Development of a Generalized Neural Network Model to Detect Faults in Building Energy Performance -- Part II..... 74
- AKASAKA, HIROSHI, HIDEYO NIMIYA, KAZUHIRO SOGA, SHIN-ICHI MATSUMOTO, KAZUO EMURA, NOBUHIRO MIKI, ETSUKO EMURA, KOJI TAKEMASA, Development of Expanded

- AMeDAS Weather Data for Building Energy Calculation in Japan..... 455
- AKKERMAN, ROBERT, JIM B. SAWERS, Cooling Thermal Storage Capital Cost Economies..... 905
- AL-AWAJI, SALEH H., SYED M. HASNAIN, MOHAMED S. SMIAI, ABDULRAHMAN M. AL-IBRAHIM, Analysis of Electric Energy Consumption in an Office Building in Saudi Arabia..... 173
- AL-IBRAHIM, ABDULRAHMAN M., SYED M. HASNAIN, MOHAMED S. SMIAI, SALEH H. AL-AWAJI, Analysis of Electric Energy Consumption in an Office Building in Saudi Arabia..... 173

B

- BAHNFLETH, WILLIAM P., W.J. KOWALSKI, Effective UVGI System Design Through Improved Modeling..... 721
- BANSAL, PRADEEP K., JUSTIN M. O'BRIEN, A New Quasi-Static Cogeneration Model..... 161
- BASKIN, EVELYN, EDWARD A. VINEYARD, ESSAM A. IBRAHIM, Hydraulic-Powered Fan Coil for Advanced Hydronic Distribution Systems, Part I: Thermal Performance and Energy Characterization of Conventional Fan Coil Units..... 828
- BASKIN, EVELYN, EDWARD A. VINEYARD, ESSAM A. IBRAHIM, Hydraulic-Powered Fan Coil for Advanced Hydronic Distribution Systems, Part II: Thermal Performance and Energy Requirements of Modified Fan-Coil Units..... 837
- BECKER, BRYAN R., PERRY L. BOESCHEN, A Case Study of Condensing Boiler Energy Savings..... 96
- BECKMAN, WILLIAM A., IAN B.D. MCINTOSH, JOHN W. MITCHELL, Fault Detection and Diagnosis in Chillers--Part I: Model Development and Application..... 268
- BEGGS, TIMOTHY R., JOHN K. HOLTON, Comparative Ventilation Systems Tests in a Mixed Climate..... 692
- BESANT, ROBERT W., HONG CHEN, LEENA THOMAS, Modeling Frost Characteristics on Heat Exchanger Fins: Part I, Numerical Model..... 357
- BESANT, ROBERT W., HONG CHEN, LEENA THOMAS, Modeling Frost Characteristics on Heat Exchanger Fins: Part II, Model Validation and Limitations..... 368
- BERNIER, MICHEL A., STÉPHANE HALLÉ, Surface Temperature Measurements Inside an Insulated Glazing Unit Using Liquid Crystals..... 591
- BOESCHEN, PERRY L., BRYAN R. BECKER, A Case Study of Condensing Boiler Energy Savings..... 96
- BOWMAN, GEORGE, MICHAEL J. HOLMES, GEOFF J. LEVERMORE, Comparison of Manual Load Calculation Using Simplified Weather Data with Simulation and Hourly Weather Data..... 475

BRANDEMUEHL, MICHAEL J., CHRISTOPHER C. SCHROEDER, MONCEF KRARTI, Error Analysis of Measurement and Control Techniques of Outside Air Intake Rates in VAV Systems	26
BRANDEMUEHL, MICHAEL J., MONCEF KRARTI, CHRISTOPHER C. SCHROEDER, ERIC JEANETTE, Experimental Analysis of Measurement and Control Techniques of Outside Air Intake Rates in VAV Systems	39
BREEKWEG, MARCUS R.B., PETER GRUBER, OSMAN AHMED, Development of a Generalized Neural Network Model to Detect Faults in Building Energy Performance -- Part I	61
BREEKWEG, MARCUS R.B., PETER GRUBER, OSMAN AHMED, Development of a Generalized Neural Network Model to Detect Faults in Building Energy Performance -- Part II	74

C

CANE, R.L. DOUGLAS, JEREMY M. GARNET, CHRISTOPHER J. IRELAND, Development of Guidelines for Assessing the Environmental Benefits of Heat Recovery Heat Pumps	217
CARLSON, STEVE W., HUGH I. HENDERSON, JR., MUKESH K. KHATTAR, ADAM C. WALBURGER, The Implications of the Measured Performance of Variable Flow Pumping Systems in Geothermal and Water Loop Heat Pump Applications	533
CARLSON, STEVEN W., GSHP Bore Field Performance Comparisons of Standard and Thermally Enhanced Grout	442
CHEN, HONG, LEENA THOMAS, ROBERT W. BESANT, Modeling Frost Characteristics on Heat Exchanger Fins: Part I, Numerical Model	357
CHEN, HONG, LEENA THOMAS, ROBERT W. BESANT, Modeling Frost Characteristics on Heat Exchanger Fins: Part II, Model Validation and Limitations	368
CHEN, QINGYAN, CHUNXIN YANG, PHILIP DEMOKRITOU, JOHN SPENGLER, AUSTIN PARSONS, Ventilation and Air Quality in Indoor Ice Skating Arenas	338
CHIASSON, ANDREW D., JEFFREY D. SPITLER, SIMON J. REES, MARVIN D. SMITH, A Model for Simulating the Performance of a Shallow Pond as a Supplemental Heat Rejecter with Closed-Loop Ground-Source Heat Pump Systems	107
CHOW, WAN K., On the Temperatures in Forced Ventilation Fires	298
CHUANGCHID, PIRAWAS, MONCEF KRARTI, Economic Analysis of Foundation Heat Gain for Refrigerated Warehouses	229
CHUANGCHID, PIRAWAS, MONCEF KRARTI, Parametric Analysis and Development of a	

Design Tool for Foundation Heat Gain for Coolers	240
CLAUSEN, GEO, LEI FANG, P. OLE FANGER, Temperature and Humidity: Important Factors for Perception of Air Quality and for Ventilation Requirements	503
COLLIVER, DONALD G., RICHARD S. GATES, Effect of Data Period-of-Record on Estimation of HVAC&R Design Temperatures	466
CUMMINGS, JAMES B., CHARLES R. WITHERS, JR., NEIL A. MOYER, Evaluation of the Duct Leakage Estimation Procedures of ASHRAE Standard 152P	784

D

DAHL, SCOTT D., MING ZHANG, A Computational Study of Heat Transfer and Friction Characteristics of a Smooth Wavy Fin Heat Exchanger	864
DEMOKRITOU, PHILIP, CHUNXIN YANG, QINGYAN CHEN, JOHN SPENGLER, AUSTIN PARSONS, Ventilation and Air Quality in Indoor Ice Skating Arenas	338
DEN BRAVEN, KAREN R., Regulations on Grouting for Closed-Loop Ground-Coupled Heat Pumps in the United States	447
DHARMADHIKARI, SHASHI, DIDIER PONS, FRANÇOIS PRINCIPAUD, Contribution of Stratified Thermal Storage to Cost-Effective Trigeneration Project	912
DINCER, IBRAHIM, MARC A. ROSEN, Exergy Efficiencies of Sensible, Mixed Thermal Energy Storage Systems	260
DINSE, DAVID R., HARVEY M. SACHS, Geology and the Ground Heat Exchanger: What Engineers Need to Know	421
DONNINI, GIOVANNA, FARIBORZ HAGHIGHAT, AHMED C. MEGRI, GIOVANNI GIORGI, Responses of Disabled, Temporarily Ill, and Elderly Persons to Thermal Environments	329
DOYLE, GREGORY O., ANAND K. SETH, TEERACHAI SRISIRIKUL, HVAC Systems for Inpatient Rooms	625
DRAGAN, ALEXANDRA, Comparative Analysis of HVAC Systems That Minimize the Risk of Airborne Infectious Disease Transmission	650
DRAGAN, ALEXANDRA, HVAC Design Approach and Design Criteria for Health Care Facilities	637

E

ELMAHDY, A. HAKIM, K. HADDAD, Experimental Procedure and Uncertainty Analysis of a Guarded Hotbox Method to Determine the Thermal Transmission Coefficient of Skylights and Sloped Glazing	601
--	-----

EMURA, ETSUKO, HIROSHI AKASAKA, HIDEYO NIMIYA, KAZUHIRO SOGA, SHIN-ICHI MATSUMOTO, KAZUO EMURA, NOBUHIRO MIKI, KOJI TAKEMASA, Development of Expanded AMeDAS Weather Data for Building Energy Calculation in Japan.	455
EMURA, KAZUO, HIROSHI AKASAKA, HIDEYO NIMIYA, KAZUHIRO SOGA, SHIN-ICHI MATSUMOTO, NOBUHIRO MIKI, ETSUKO EMURA, KOJI TAKEMASA, Development of Expanded AMeDAS Weather Data for Building Energy Calculation in Japan.	455

F

FANG, LEI, GEO CLAUSEN, P. OLE FANGER, Temperature and Humidity: Important Factors for Perception of Air Quality and for Ventilation Requirements.	503
FANGER, P. OLE, JØRN TOFTUM, L.W. RASMUSSEN, J. MACKEPFRANG, Discomfort Due to Skin Humidity with Different Fabric Textures and Materials.	521
FANGER, P. OLE, LEI FANG, GEO CLAUSEN, Temperature and Humidity: Important Factors for Perception of Air Quality and for Ventilation Requirements.	503
FANNEY, A. HUNTER, ROBERT R. ZARR, JAREB D. KETAY-PAPROCKI, Thermal Performance of Residential Electric Water Heaters Using Alternative Blowing Agents.	377
FOSTER, GUSTAV, JR., JITENDRA B. SINGH, ARTHUR W. HUNT, Representative Operating Problems of Commercial Ground-Source and Groundwater-Source Heat Pumps.	561
FRANCISCO, PAUL W., LARRY PALMITER, Field Validation of Standard 152P.	771
FU, XIAOYONG, Impact of Temperature Control Approaches on the Thermal Performance of a Household Refrigerator.	292

G

GALLIVAN, THERESA, DAVID HANITCHAK, ANAND K. SETH, Inpatient Facility Needs.	646
GAN, ANDRÉ I., SANFORD A. KLEIN, DOUGLAS T. REINDL, Analysis of Refrigerator / Freezer Appliances Having Dual Refrigeration Cycles.	185
GARNET, JEREMY M., R.L. DOUGLAS CANE, CHRISTOPHER J. IRELAND, Development of Guidelines for Assessing the Environmental Benefits of Heat Recovery Heat Pumps.	217
GATES, RICHARD S., DONALD G. COLLIVER, Effect of Data Period-of-Record on Estimation of HVAC&R Design Temperatures.	466
GIORGI, GIOVANNI, FARIBORZ HAGHIGHAT, AHMED C. MEGRI, GIOVANNA DONNINI,	

Responses of Disabled, Temporarily Ill, and Elderly Persons to Thermal Environments.	329
GRUBER, PETER, MARCUS R.B. BREEKWEG, OSMAN AHMED, Development of a Generalized Neural Network Model to Detect Faults in Building Energy Performance -- Part I.	61
GRUBER, PETER, MARCUS R.B. BREEKWEG, OSMAN AHMED, Development of a Generalized Neural Network Model to Detect Faults in Building Energy Performance -- Part II.	74

H

HADDAD, K., A. HAKIM ELMAHDY, Experimental Procedure and Uncertainty Analysis of a Guarded Hotbox Method to Determine the Thermal Transmission Coefficient of Skylights and Sloped Glazing.	601
HAGHIGHAT, FARIBORZ, AHMED C. MEGRI, GIOVANNA DONNINI, GIOVANNI GIORGI, Responses of Disabled, Temporarily Ill, and Elderly Persons to Thermal Environments.	329
HAGSTRÖM, KIM H., KAI SIRÉN, Calculation of Room Velocity Using Kinetic Energy Balance.	3
HALLÉ, STÉPHANE, MICHEL A. BERNIER, Surface Temperature Measurements Inside an Insulated Glazing Unit Using Liquid Crystals.	591
HANITCHAK, DAVID, THERESA GALLIVAN, ANAND K. SETH, Inpatient Facility Needs.	646
HASHIMOTO, YUKIHIRO, MASATO KASAHARA, YOSHIKI KUZUU, TADAHICO MATSUBA, KAZUYUKI KAMIMURA, SHIGERU KUROSU, Physical Model of an Air-Conditioned Space for Control Analysis.	304
HASNAIN, SYED M., MOHAMED S. SMIAI, ABDULRAHMAN M. AL-IBRAHIM, SALEH H. AL-AWAJI, Analysis of Electric Energy Consumption in an Office Building in Saudi Arabia.	173
HENDERSON, HUGH I., JR., MUKESH K. KHATTAR, STEVE W. CARLSON, ADAM C. WALBURGER, The Implications of the Measured Performance of Variable Flow Pumping Systems in Geothermal and Water Loop Heat Pump Applications.	533
HERMANS, RICHARD D., Health Care Facility Design Manual - Room Design.	762
HOLMES, MICHAEL J., GEORGE BOWMAN, GEOFF J. LEVERMORE, Comparison of Manual Load Calculation Using Simplified Weather Data with Simulation and Hourly Weather Data.	475
HOLTON, JOHN K., TIMOTHY R. BEGGS, Comparative Ventilation Systems Tests in a Mixed Climate.	692
HOSNI, MOHAMMAD H., JERRY M. SIPES, Computer Analysis and Comparison of Experimental Data for Moisture Accumulation in Concrete Masonry Walls.	347

HUGHES, PATRICK J., JOHN A. SHONDER, MICHAELA A. MARTIN, HOWARD A. MCLAIN, Comparative Analysis of Life-Cycle Costs of Geothermal Heat Pumps and Three Conventional HVAC Systems	551
HUI, CHEN, GRENVILLE K. YUILL, REBECCA UPHAM, Air Leakage Through Automatic Doors	145
HUMPHREYS, MICHAEL A., J. FERGUS NICOL, Effects of Measurement and Formulation Error on Thermal Comfort Indices in the ASHRAE Database of Field Studies	493
HUMPHREYS, MICHAEL A., J. FERGUS NICOL, Outdoor Temperature and Indoor Thermal Comfort: Raising the Precision of the Relationship for the 1998 ASHRAE Database of Field Studies	485
HUNT, ARTHUR W., JITENDRA B. SINGH, GUSTAV FOSTER, JR., Representative Operating Problems of Commercial Ground-Source and Groundwater-Source Heat Pumps	561

I

IBRAHIM, ESSAM A., EVELYN BASKIN, EDWARD A. VINEYARD, Hydraulic-Powered Fan Coil for Advanced Hydronic Distribution Systems, Part I: Thermal Performance and Energy Characterization of Conventional Fan Coil Units	828
IBRAHIM, ESSAM A., EVELYN BASKIN, EDWARD A. VINEYARD, Hydraulic-Powered Fan Coil for Advanced Hydronic Distribution Systems, Part II: Thermal Performance and Energy Requirements of Modified Fan-Coil Units	837
IRELAND, CHRISTOPHER J., R.L. DOUGLAS CANE, JEREMY M. GARNET, Development of Guidelines for Assessing the Environmental Benefits of Heat Recovery Heat Pumps	217

J

JÄHNIG, DAGMAR I., DOUGLAS T. REINDL, SANFORD A. KLEIN, A Semi-Empirical Method for Representing Domestic Refrigerator/Freezer Compressor Calorimeter Test Data	122
JALALZADEH-AZAR, ALI A., Consideration of Transient Response and Energy Cost in Performance Evaluation of a Desiccant Dehumidification System	210
JANG, JIIN-YUH, CHIEN-NAN LIN, A Numerical Analysis of Three-Dimensional Heat Transfer and Fluid Flow in Chevron Plate Channels	856
JEANETTE, ERIC, MONCEF KRARTI, CHRISTOPHER C. SCHROEDER, MICHAEL J. BRANDEMUEHL, Experimental Analysis of Measurement and Control Techniques of Outside Air Intake Rates in VAV Systems	39

JIANG, JANE, FARHAD MEMARZADEH, Methodology for Minimizing Risk from Airborne Organisms in Hospital Isolation Rooms	731
JIANG, YI, XUZHONG QIN, GANG LIU, Evaluation of Hydraulic Stability and Its Application in Hydronic Systems	253
JIANG, YI, XUZHONG QIN, Hydraulic Process Fault Diagnosis and Parameter Identification in District Heating Network	284
JONES, ALAN M., GEOFF J. LEVERMORE, ANDREW J. WRIGHT, Simulation of a Naturally Ventilated Building at Different Locations	402

K

KAMIMURA, KAZUYUKI, MASATO KASAHARA, YOSHIKI KUZUU, TADAHICO MATSUBA, YUKIHIRO HASHIMOTO, SHIGERU KUROSU, Physical Model of an Air-Conditioned Space for Control Analysis	304
KASAHARA, MASATO, YOSHIKI KUZUU, TADAHICO MATSUBA, YUKIHIRO HASHIMOTO, KAZUYUKI KAMIMURA, SHIGERU KUROSU, Physical Model of an Air-Conditioned Space for Control Analysis	304
KAVANAUGH, STEVEN P., LAN XIE, Energy Use of Ventilation Air Conditioning Options for Ground-Source Heat Pump Systems	543
KETAY-PAPROCKI, JAREB D., A. HUNTER FANEY, ROBERT R. ZARR, Thermal Performance of Residential Electric Water Heaters Using Alternative Blowing Agents	377
KHATTAR, MUKESH K., HUGH I. HENDERSON, JR., STEVE W. CARLSON, ADAM C. WALBURGER, The Implications of the Measured Performance of Variable Flow Pumping Systems in Geothermal and Water Loop Heat Pump Applications	533
KILKIS, BIROL İ., Rationalization and Optimization of Heating Systems Coupled to Ground-Source Heat Pumps	817
KLEIN, SANFORD A., ANDRÉ I. GAN, DOUGLAS T. REINDL, Analysis of Refrigerator / Freezer Appliances Having Dual Refrigeration Cycles	185
KLEIN, SANFORD A., DAGMAR I. JÄHNIG, DOUGLAS T. REINDL, A Semi-Empirical Method for Representing Domestic Refrigerator/Freezer Compressor Calorimeter Test Data	122
KLEMS, JOSEPH H., U-Factors of Flat and Domed Skylights	614
KONISHI, MASAOKI, YOSHIICHI OZEKI, CHIE NARITA, SHIN-ICHI TANABE, Angle Factors Between Human Body and Rectangular Planes Calculated by a Numerical Model	511
KOWALSKI, W.J., WILLIAM P. BAHNFLETH, Effective UVGI System Design Through Improved Modeling	721

KRAKOW, KALMAN I., FENG ZHAO, ALI E. MUHSIN, Economizer Control	13
KRARTI, MONCEF, CHRISTOPHER C. SCHROEDER, ERIC JEANETTE, MICHAEL J. BRANDEMUEHL, Experimental Analysis of Measurement and Control Techniques of Outside Air Intake Rates in VAV Systems	39
KRARTI, MONCEF, CHRISTOPHER C. SCHROEDER, MICHAEL J. BRANDEMUEHL, Error Analysis of Measurement and Control Techniques of Outside Air Intake Rates in VAV Systems	26
KRARTI, MONCEF, PIRAWAS CHUANGCHID, Economic Analysis of Foundation Heat Gain for Refrigerated Warehouses	229
KRARTI, MONCEF, PIRAWAS CHUANGCHID, Parametric Analysis and Development of a Design Tool for Foundation Heat Gain for Coolers	240
KUROSU, SHIGERU, MASATO KASAHARA, YOSHIKI KUZUU, TADAHICO MATSUBA, Physical Model of an Air-Conditioned Space for Control Analysis	304
KUZUU, YOSHIKI, MASATO KASAHARA, TADAHICO MATSUBA, YUKIHIRO HASHIMOTO, KAZUYUKI KAMIMURA, SHIGERU KUROSU, Physical Model of an Air-Conditioned Space for Control Analysis	304

L

LEFEBVRE, GERALDINE, M.B. ULLAH, Estimation of Annual Energy-Saving Contribution of an Automated Blind System	408
LEKOV, ALEX B., JAMES D. LUTZ, CAMILLA DUNHAM WHITEHEAD, JAMES E. MCMAHON, Cost of Increased Energy Efficiency for Residential Water Heaters	875
LEKOV, ALEX B., JAMES D. LUTZ, XIAOMIN LIU, CAMILLA DUNHAM WHITEHEAD, JAMES E. MCMAHON, A Monte Carlo Approach to the Calculation of Energy Consumption for Residential Gas-Fired Water Heaters	892
LEU, JIN-SHENG, MIN-SHENG LIU, JANE-SUNN LIAW, CHI-CHUAN WANG, 3-D Simulation of Thermal-Hydraulic Characteristics of Louvered Fin-and-Tube Heat Exchangers With Oval Tubes	849
LEVERMORE, GEOFF J., ALAN M. JONES, ANDREW J. WRIGHT, Simulation of a Naturally Ventilated Building at Different Locations	402
LEVERMORE, GEOFF J., GEORGE BOWMAN, MICHAEL J. HOLMES, Comparison of Manual Load Calculation Using Simplified Weather Data with Simulation and Hourly Weather Data	475
LIAW, JANE-SUNN, MIN-SHENG LIU, JIN-SHENG LEU, CHI-CHUAN WANG, 3-D Simulation of Thermal-Hydraulic Characteristics of Lou-	

vered Fin-and-Tube Heat Exchangers With Oval Tubes	849
LILJE, KENNETH C., The Impact of Chemistry on the Use of Polyol Ester Lubricants in Refrigeration	661
LIN, CHIEN-NAN, JIIN-YUH JANG, A Numerical Analysis of Three-Dimensional Heat Transfer and Fluid Flow in Chevron Plate Channels	856
LINKOUS, RANDALL L., EDWARD A. VINEYARD, Field Evaluation of a Residential Hydronic Distribution System in the Cooling Mode	806
LIU, GANG, XUZHONG QIN, YI JIANG, Evaluation of Hydraulic Stability and Its Application in Hydronic Systems	253
LIU, MIN-SHENG, JIN-SHENG LEU, JANE-SUNN LIAW, CHI-CHUAN WANG, 3-D Simulation of Thermal-Hydraulic Characteristics of Louvered Fin-and-Tube Heat Exchangers With Oval Tubes	849
LIU, XIAOMIN, JAMES D. LUTZ, ALEX B. LEKOV, CAMILLA DUNHAM WHITEHEAD, JAMES E. MCMAHON, A Monte Carlo Approach to the Calculation of Energy Consumption for Residential Gas-Fired Water Heaters	892
LSTIBUREK, JOSEPH W., ARMIN F. RUDD, Measurement of Ventilation and Interzonal Distribution in Single-Family Homes	709
LUTZ, JAMES D., ALEX B. LEKOV, JAMES E. MCMAHON, CAMILLA DUNHAM WHITEHEAD, Cost of Increased Energy Efficiency for Residential Water Heaters	875
LUTZ, JAMES D., XIAOMIN LIU, ALEX B. LEKOV, CAMILLA DUNHAM WHITEHEAD, JAMES E. MCMAHON, A Monte Carlo Approach to the Calculation of Energy Consumption for Residential Gas-Fired Water Heaters	892

M

MACKEPRANG, J., JØRN TOFTUM, L.W. RASMUSSEN, P. OLE FANGER, Discomfort Due to Skin Humidity with Different Fabric Textures and Materials	521
MANNING, ANDY, FARHAD MEMARZADEH, Thermal Comfort, Uniformity, and Ventilation Effectiveness in Patient Rooms: Performance Assessment Using Ventilation Indices	748
MARTIN, MICHAELA A., JOHN A. SHONDER, HOWARD A. MCLAIN, PATRICK J. HUGHES, Comparative Analysis of Life-Cycle Costs of Geothermal Heat Pumps and Three Conventional HVAC Systems	551
MATHUR, GURSARAN D., Hydrodynamic Characteristics of Propane (R-290), Isobutane (R-600a), and 50/50 Mixture	571
MATSON, NANCE E., CRAIG P. WRAY, MAX H. SHERMAN, Whole-House Ventilation Strate-	

gies to Meet Proposed Standard 62.2: Energy Cost Considerations.	681	MUHSIN, ALI E., KALMAN I. KRAKOW, FENG ZHAO, Economizer Control.	13
MATSUBA, TADAHICO, MASATO KASAHARA, YOSHIKI KUZUU, YUKIHIRO HASHIMOTO, KAZUYUKI KAMIMURA, SHIGERU KUROSU, Physical Model of an Air-Conditioned Space for Control Analysis.	304	MURPHY, DAVID J., JR., RICHARD D. RIVERS, Air Filter Performance Under Variable Air Volume Conditions.	131
MATSUMOTO, SHIN-ICHI, HIROSHI AKASAKA, HIDEYO NIMIYA, KAZUHIRO SOGA, KAZUO EMURA, NOBUHIRO MIKI, ETSUKO EMURA, KOJI TAKEMASA, Development of Expanded AMeDAS Weather Data for Building Energy Calculation in Japan.	455	MURPHY, WILLIAM E., QIANG ZHANG, Measurement of Thermal Conductivity for Three Bore-hole Fill Materials Used for GSHP.	434
MCINTOSH, IAN B.D., JOHN W. MITCHELL, WILLIAM A. BECKMAN, Fault Detection and Diagnosis in Chillers--Part I: Model Development and Application.	268		
MCLAIN, HOWARD A., JOHN A. SHONDER, MICHAELA A. MARTIN, PATRICK J. HUGHES, Comparative Analysis of Life-Cycle Costs of Geothermal Heat Pumps and Three Conventional HVAC Systems.	551	N	
MCMAHON, JAMES E., ALEX B. LEKOV, JAMES D. LUTZ, CAMILLA DUNHAM WHITEHEAD, Cost of Increased Energy Efficiency for Residential Water Heaters.	875	NARITA, CHIE, YOSHIICHI OZEKI, MASAOKI KONISHI, SHIN-ICHI TANABE, Angle Factors Between Human Body and Rectangular Planes Calculated by a Numerical Model.	511
MCMAHON, JAMES E., JAMES D. LUTZ, XIAOMIN LIU, ALEX B. LEKOV, CAMILLA DUNHAM WHITEHEAD, A Monte Carlo Approach to the Calculation of Energy Consumption for Residential Gas-Fired Water Heaters.	892	NELSON, KIRBY P., Dynamic Ice - Low-Cost Alternative for New Construction.	920
MEGRI, AHMED C., FARIBORZ HAGHIGHAT, GIOVANNA DONNINI, GIOVANNI GIORGI, Responses of Disabled, Temporarily Ill, and Elderly Persons to Thermal Environments.	329	NICOL, J. FERGUS, MICHAEL A. HUMPHREYS, Effects of Measurement and Formulation Error on Thermal Comfort Indices in the ASHRAE Database of Field Studies.	493
MEMARZADEH, FARHAD, ANDY MANNING, Thermal Comfort, Uniformity, and Ventilation Effectiveness in Patient Rooms: Performance Assessment Using Ventilation Indices.	748	NICOL, J. FERGUS, MICHAEL A. HUMPHREYS, Outdoor Temperature and Indoor Thermal Comfort: Raising the Precision of the Relationship for the 1998 ASHRAE Database of Field Studies.	485
MEMARZADEH, FARHAD, JANE JIANG, Methodology for Minimizing Risk from Airborne Organisms in Hospital Isolation Rooms.	731	NIMIYA, HIDEYO, HIROSHI AKASAKA, KAZUHIRO SOGA, SHIN-ICHI MATSUMOTO, KAZUO EMURA, NOBUHIRO MIKI, ETSUKO EMURA, KOJI TAKEMASA, Development of Expanded AMeDAS Weather Data for Building Energy Calculation in Japan.	455
MEYER, JOSUA P., Experimental Evaluation of Five Refrigerants as Replacements for R-22.	583		
MIKI, NOBUHIRO, HIROSHI AKASAKA, HIDEYO NIMIYA, KAZUHIRO SOGA, SHIN-ICHI MATSUMOTO, KAZUO EMURA, ETSUKO EMURA, KOJI TAKEMASA, Development of Expanded AMeDAS Weather Data for Building Energy Calculation in Japan.	455	O	
MITCHELL, JOHN W., IAN B.D. MCINTOSH, WILLIAM A. BECKMAN, Fault Detection and Diagnosis in Chillers--Part I: Model Development and Application.	268	O'BRIEN, JUSTIN M., PRADEEP K. BANSAL, A New Quasi-Static Cogeneration Model.	161
MOYER, NEIL A., JAMES B. CUMMINGS, CHARLES R. WITHERS, JR., Evaluation of the Duct Leakage Estimation Procedures of ASHRAE Standard 152P.	784	ORME, MALCOLM, Applicable Input Data for a Proposed Ventilation Modeling Data Guide.	395
		OZEKI, YOSHIICHI, MASAOKI KONISHI, CHIE NARITA, SHIN-ICHI TANABE, Angle Factors Between Human Body and Rectangular Planes Calculated by a Numerical Model.	511
		P	
		PALMITER, LARRY, PAUL W. FRANCISCO, Field Validation of Standard 152P.	771
		PARRACK, ANTHONY B., WILLIAM E. STEWART, JR., Air Temperature Depression and Potential Icing at the Inlet of Stationary Combustion Turbines.	318
		PARSONS, AUSTIN, CHUNXIN YANG, PHILIP DEMOKRITOU, QINGYAN CHEN, JOHN SPENGLER, Ventilation and Air Quality in Indoor Ice Skating Arenas.	338

PATE, MICHAEL, PREDRAG POPOVIC, RONALD L. SHIMON, NICHOLAS E. SCHNUR, Effects of Lubricant Miscibility and Viscosity on the Performance of an R-134a Refrigerating System . . .	670
PONS, DIDIER, SHASHI DHARMADHIKARI, FRANÇOIS PRINCIPAUD, Contribution of Stratified Thermal Storage to Cost-Effective Trigeration Project	912
POPOVIC, PREDRAG, MICHAEL PATE, RONALD L. SHIMON, NICHOLAS E. SCHNUR, Effects of Lubricant Miscibility and Viscosity on the Performance of an R-134a Refrigerating System . .	670
PRINCIPAUD, FRANÇOIS, SHASHI DHARMADHIKARI, DIDIER PONS, Contribution of Stratified Thermal Storage to Cost-Effective Trigeration Project	912

Q

QIN, XUZHONG, YI JIANG, GANG LIU, Evaluation of Hydraulic Stability and Its Application in Hydronic Systems	253
QIN, XUZHONG, YI JIANG, Hydraulic Process Fault Diagnosis and Parameter Identification in District Heating Network	284

R

REES, SIMON J., ANDREW D. CHIASSON, JEFFREY D. SPITLER, MARVIN D. SMITH, A Model for Simulating the Performance of a Shallow Pond as a Supplemental Heat Rejecter with Closed-Loop Ground-Source Heat Pump Systems	107
REINDL, DOUGLAS T., ANDRÉ I. GAN, SANFORD A. KLEIN, Analysis of Refrigerator / Freezer Appliances Having Dual Refrigeration Cycles . .	185
REINDL, DOUGLAS T., DAGMAR I. JÄHNIG, SANFORD A. KLEIN, A Semi-Empirical Method for Representing Domestic Refrigerator/Freezer Compressor Calorimeter Test Data	122
RIVERS, RICHARD D., DAVID J. MURPHY, JR., Air Filter Performance Under Variable Air Volume Conditions	131
ROSEN, MARC A., IBRAHIM DINCER, Exergy Efficiencies of Sensible, Mixed Thermal Energy Storage Systems	260
RUDD, ARMIN F., JOSEPH W. LSTIBUREK, Measurement of Ventilation and Interzonal Distribution in Single-Family Homes	709

S

SACHS, HARVEY M., DAVID R. DINSE, Geology and the Ground Heat Exchanger: What Engineers Need to Know.	421
---	-----

SAWERS, JIM B., ROBERT AKKERMAN, Cooling Thermal Storage Capital Cost Economies. . . .	905
SCHEATZLE, DAVID G., Monitoring and Evaluating a Year-Round Radiant/Convective System . . .	823
SCHNUR, NICHOLAS E., PREDRAG POPOVIC, MICHAEL PATE, RONALD L. SHIMON, Effects of Lubricant Miscibility and Viscosity on the Performance of an R-134a Refrigerating System	670
SCHROEDER, CHRISTOPHER C., MONCEF KRARTI, ERIC JEANETTE, MICHAEL J. BRANDEMUEHL, Experimental Analysis of Measurement and Control Techniques of Outside Air Intake Rates in VAV Systems	39
SCHROEDER, CHRISTOPHER C., MONCEF KRARTI, MICHAEL J. BRANDEMUEHL, Error Analysis of Measurement and Control Techniques of Outside Air Intake Rates in VAV Systems	26
SHERMAN, MAX H., CRAIG P. WRAY, NANCE E. MATSON, Whole-House Ventilation Strategies to Meet Proposed Standard 62.2: Energy Cost Considerations	681
SHIMON, RONALD L., PREDRAG POPOVIC, MICHAEL PATE, NICHOLAS E. SCHNUR, Effects of Lubricant Miscibility and Viscosity on the Performance of an R-134a Refrigerating System	670
SETH, ANAND K., GREGORY O. DOYLE, TEERACHAI SRISIRIKUL, HVAC Systems for Inpatient Rooms	625
SETH, ANAND K., THERESA GALLIVAN, DAVID HANITCHAK, Inpatient Facility Needs	646
SHONDER, JOHN A., MICHAELA A. MARTIN, HOWARD A. MCLAIN, PATRICK J. HUGHES, Comparative Analysis of Life-Cycle Costs of Geothermal Heat Pumps and Three Conventional HVAC Systems	551
SINGH, JITENDRA B. GUSTAV FOSTER, JR., ARTHUR W. HUNT, Representative Operating Problems of Commercial Ground-Source and Groundwater-Source Heat Pumps.	561
SIPES, JERRY M., MOHAMMAD H. HOSNI, Computer Analysis and Comparison of Experimental Data for Moisture Accumulation in Concrete Masonry Walls	347
SIRÉN, KAI, KIM H. HAGSTRÖM, Calculation of Room Velocity Using Kinetic Energy Balance . . .	3
SMITH, MARVIN D., ANDREW D. CHIASSON, JEFFREY D. SPITLER, SIMON J. REES, A Model for Simulating the Performance of a Shallow Pond as a Supplemental Heat Rejecter with Closed-Loop Ground-Source Heat Pump Systems	107
SOGA, KAZUHIRO, HIROSHI AKASAKA, HIDEYO NIMIYA, SHIN-ICHI MATSUMOTO, KAZUO EMURA, NOBUHIRO MIKI, ETSUKO EMURA, KOJI TAKEMASA, Development of Expanded AMeDAS Weather Data for Building Energy Calculation in Japan.	455

SPENGLER, JOHN, CHUNXIN YANG, PHILIP DEMOKRITOU, QINGYAN CHEN, AUSTIN PARSONS, Ventilation and Air Quality in Indoor Ice Skating Arenas	338
SPITLER, JEFFREY D., ANDREW D. CHIASSON, SIMON J. REES, MARVIN D. SMITH, A Model for Simulating the Performance of a Shallow Pond as a Supplemental Heat Rejecter with Closed-Loop Ground-Source Heat Pump Systems	107
SMIAI, MOHAMED S., SYED M. HASNAIN, ABDUL-RAHMAN M. AL-IBRAHIM, SALEH H. AL-AWA-JI, Analysis of Electric Energy Consumption in an Office Building in Saudi Arabia	173
SPITLER, JEFFREY D., CENK YAVUZTURK, Comparative Study to Investigate Operating and Control Strategies for Hybrid Ground-Source Heat Pump Systems Using a Short Time-Step Simulation Model	192
SRISIRIKUL, TEERACHAI, ANAND K. SETH, GREGORY O. DOYLE, HVAC Systems for Inpatient Rooms	625
STEWART, WILLIAM E., JR., ANTHONY B. PAR-RACK, Air Temperature Depression and Potential Icing at the Inlet of Stationary Combustion Turbines.	318
STRUNK, PETER R., Validation of ASHRAE Standard 152P in Basement Warm-Air Distribution Systems	796

T

TAKEMASA, KOJI, HIROSHI AKASAKA, HIDEYO NIMIYA, KAZUHIRO SOGA, SHIN-ICHI MATSUMOTO, KAZUO EMURA, NOBUHIRO MIKI, ETSUKO EMURA, Development of Expanded AMeDAS Weather Data for Building Energy Calculation in Japan.	455
TANABE, SHIN-ICHI, YOSHIICHI OZEKI, MASA-AKI KONISHI, CHIE NARITA, Angle Factors Between Human Body and Rectangular Planes Calculated by a Numerical Model	511
THOMAS, LEENA, HONG CHEN, ROBERT W. BESANT, Modeling Frost Characteristics on Heat Exchanger Fins: Part I, Numerical Model	357
THOMAS, LEENA, HONG CHEN, ROBERT W. BESANT, Modeling Frost Characteristics on Heat Exchanger Fins: Part II, Model Validation and Limitations	368
TOFTUM, JØRN, L.W. RASMUSSEN, J. MACK-EPRANG, P. OLE FANGER, Discomfort Due to Skin Humidity with Different Fabric Textures and Materials	521

U

ULLAH, M.B., GERALDINE LEFEBVRE, Estimation of Annual Energy-Saving Contribution of an Automated Blind System.	408
UPHAM, REBECCA, GRENVILLE K. YUILL, CHEN HUI, Air Leakage Through Automatic Doors.	145

V

VINEYARD, EDWARD A., EVELYN BASKIN, ESSAM A. IBRAHIM, Hydraulic-Powered Fan Coil for Advanced Hydronic Distribution Systems, Part I: Thermal Performance and Energy Characterization of Conventional Fan Coil Units.	828
VINEYARD, EDWARD A., EVELYN BASKIN, ESSAM A. IBRAHIM, Hydraulic-Powered Fan Coil for Advanced Hydronic Distribution Systems, Part II: Thermal Performance and Energy Requirements of Modified Fan-Coil Units	837
VINEYARD, EDWARD A.D, RANDALL L. LINKOUS, Field Evaluation of a Residential Hydronic Distribution System in the Cooling Mode.	806

W

WALBURGER, ADAM C., HUGH I. HENDERSON, JR., MUKESH K. KHATTAR, STEVE W. CARLSON, The Implications of the Measured Performance of Variable Flow Pumping Systems in Geothermal and Water Loop Heat Pump Applications	533
WANG, CHI-CHUAN, MIN-SHENG LIU, JIN-SHENG LEU, JANE-SUNN LIAW, 3-D Simulation of Thermal-Hydraulic Characteristics of Louvered Fin-and-Tube Heat Exchangers With Oval Tubes.	849
WHITEHEAD, CAMILLA DUNHAM, ALEX B. LEKOV, JAMES D. LUTZ, JAMES E. MCMAHON, Cost of Increased Energy Efficiency for Residential Water Heaters	875
WHITEHEAD, CAMILLA DUNHAM, JAMES D. LUTZ, XIAOMIN LIU, ALEX B. LEKOV, JAMES E. MCMAHON, A Monte Carlo Approach to the Calculation of Energy Consumption for Residential Gas-Fired Water Heaters.	892
WITHERS, CHARLES R., JR., JAMES B. CUMMINGS, NEIL A. MOYER, Evaluation of the Duct Leakage Estimation Procedures of ASHRAE Standard 152P	784
WRAY, CRAIG P., NANCE E. MATSON, MAX H. SHERMAN, Whole-House Ventilation Strategies to Meet Proposed Standard 62.2: Energy Cost Considerations	681

- WRIGHT, ANDREW J., GEOFF J. LEVERMORE,
ALAN M. JONES, Simulation of a Naturally
Ventilated Building at Different Locations 402

X

- XIE, LAN, STEVEN P. KAVANAUGH, Energy Use of
Ventilation Air Conditioning Options for
Ground-Source Heat Pump Systems 543

Y

- YANG, CHUNXIN, PHILIP DEMOKRITOU, QINGY-
AN CHEN, JOHN SPENGLER, AUSTIN PAR-
SONS, Ventilation and Air Quality in Indoor Ice
Skating Arenas 338
- YAVUZTURK, CENK, JEFFREY D. SPITLER, Com-
parative Study to Investigate Operating and
Control Strategies for Hybrid Ground-Source

- Heat Pump Systems Using a Short Time-Step
Simulation Model. 192
- YUE, ZOU, Velocity Decay in Air Jets for HVAC
Applications. 53
- YUILL, GRENVILLE K., REBECCA UPHAM, CHEN
HUI, Air Leakage Through Automatic Doors. . . . 145

Z

- ZARR, ROBERT R., A. HUNTER FANNEY, JAREB
D. KETAY-PAPROCKI, Thermal Performance
of Residential Electric Water Heaters Using
Alternative Blowing Agents 377
- ZHAO, FENG, KALMAN I. KRAKOW, ALI E. MUH-
SIN, Economizer Control. 13
- ZHANG, MING, SCOTT D. DAHL, A Computational
Study of Heat Transfer and Friction Character-
istics of a Smooth Wavy Fin Heat Exchanger. . . 864
- ZHANG, QIANG, WILLIAM E. MURPHY, Measure-
ment of Thermal Conductivity for Three Bore-
hole Fill Materials Used for GSHP 434